**Quiz 5**  Name:

Chem 1B, Spring 2020

Fossum

H2SeO3 Ka1 = 2.3 × 10-3, Ka2 = 5.3 ×10-9

HCNO Ka = 3.5 × 10-4Kw = 1.0 × 10-14Ka × Kb = Kw

1. a. (0.5) If you add strong acid to HSeO3- to make a buffer, what buffer system will you get, and what will be the pH range of the buffer?

b. (0.5) If you add strong base to HSeO3- to make a buffer, what buffer system will you get, and what will be the pH range of the buffer?

c. (7) You would like to make 500. mL of a buffer with at pH of 7.80 in which the least concentrated buffer component has a concentration of 0.10 M.

How will you make this buffer if the chemicals available are: solid NaHSeO3, 1.50 M HBr, and 2.50 M KOH? (You do not have to use all of these components.) Calculate amounts and describe how you would make this buffer. Make notes that explain your reasoning for the different steps of the calculation.

2. If you titrate 25.0 mL of 0.150 M HCNO with 0.200 M NaOH,

a. (1) What is the pH at the halfway point of the titration?

b. (3) What is the pH at the ¾ of the way point?

c. (8) What is the pH at the equivalence point of this titration?