

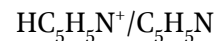
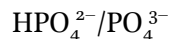
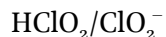
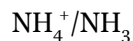
Quiz 17.1 – Buffer Solutions

Name: _____

Question 1

Each acid/base conjugate pair can act as a buffer.

Give the pH range over which each pair below works (Consult Appendix A.3 for K_a values):

**Question 2**

1.5 g of $\text{MgF}_2(\text{s})$ are dissolved in a 100.0 ml solution of 0.5 M HF. Find the pH of the solution assuming there is no volume change

Question 3

Find the pH if 25.0 ml of 0.75 M HCl are added to the buffer solution prepared in Question 2

Question 4

You want to make 200.0 ml of a buffer solution with $pH = 9.750$ using a HCN/CN^- buffer. You have one solution with $[\text{HCN}] = 0.100\text{ M}$ and another with $[\text{CN}^-] = 0.200\text{ M}$ which you can mix together to make the buffer. How many ml of each should you use?

Question 5

Find the buffer capacity of the solution prepared in Question 4 (How many moles of strong acid and strong base could be added before the pH strays more than 1 pH unit from the pK_a)

My Voice

By Rafael Campo

To cure myself of wanting Cuban songs,
I wrote a Cuban song about the need
For people to suppress their fantasies,
Especially unhealthy ones. The song
Began by making reference to the sea,
Because the sea is like a need so great
And deep it never can be swallowed. Then
The song explores some common myths
About the Cuban people and their folklore:
The story of a little Carib boy
Mistakenly abandoned to the sea;
The legend of a bird who wanted song
So desperately he gave up flight; a queen
Whose strength was greater than a rival king's.
The song goes on about morality,
And then there is a line about the sea,
How deep it is, how many creatures need
Its nourishment, how beautiful it is
To need. The song is ending now, because
I cannot bear to hear it any longer.
I call this song of needful love my voice.