Buffers

1.) Explain if the following will form a buffer solution.

a.) $0.10\ M\ KCN\ and\ 0.10\ M\ HCN$

b.) $1.0\ M\ NaOH\ and\ 1.0\ M\ NaCl$

c.) $1.0\ M\ HSO_4^-\ and\ 1.0\ M\ HCl$

d.) $2.0\ M\ HPO_4^{-2}\ and\ 1.5\ M\ PO_4^{-3}$

2.) When comparing two solutions of buffers: $1\ M\ H_2PO_4^-$ with $1\ M\ HPO_4^{-2}$ and $0.1\ M\ H_2PO_4^-$ with $0.1\ M\ HPO_4^{-2}$, will the pH be different?

3.) How would a buffer solution be made to maintain a $pH = 3.2$?

4.) If you have a $1.0\ L$ buffer solution made of $0.10\ mol\ CH_3COOH$ and $0.10\ mol\ CH_3COO^-$, can you add $0.13\ mol\ NaOH$?

5.) How would a buffer solution of $H_2PO_4^-/HPO_4^{-2}$ react if an acid or base was added? Write the reactions.