Multiple Choice Response Sheet

Name:_____

Acid-Base #2
(Buffers)

1. B
2. D
3. C
4. C
5. C
6. D
7. B
8. A
9. C
10. A
11. C
12. D
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____
25. _____
26. _____
27. _____
28. _____
29. _____
30. _____
31. _____
32. _____
33. _____
34. _____
35. _____
36. _____

1. To prepare this buffer, at least 1.0M of KF should be added to approximately the same amount of the conjugate acid of F^- which would be HF. The equation would be:

$$F^- + H_2O \rightleftharpoons HF + OH^-$$

The purpose of this buffer would be to keep the pH of the surrounding solution relatively close to 3.45 (pH = -log (Ka of HF)).

2. Adding HCl to this buffer would cause a sudden drop in the $[OH^-]$ (which is the stress). The equilibrium will shift ~~to~~ the right causing more OH^- to be created. The original amount of OH^- would drop overall causing a slight decrease in pH.

3. * pick a weak acid that will give a pH close to what you need using the formula $pH = -\log Ka$.
   * prepare a solution of that acid's conjugate base which is close to the concentration of the acid (but at least 1.0M).
   * adjust the relative concentrations of acid & base to get the exact pH required.