

TEST 3
STUDY GUIDE

| <i>Topic</i> | <i>Text Reference</i> |
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| CHAPTER 16 | |
| • Solve problems involving common ions | Notes |
| • Know what a buffer is and how it functions | 16.2 |
| • Calculate the pH of a buffer solution from given data | 16.2 |
| • Write chemical equations describing reactions of buffers with acids or bases | 16.2 |
| • Calculate the pH of a buffer solution after addition of small amounts of acid or base | 16.2, 16.3 |
| • Use Henderson-Hasselbalch equation to solve buffer problems | 16.2, 16.3 |
| • Determine the amount of components to prepare a buffer with a desired pH | Notes |
| • Determine which component to add to buffer to adjust pH to a desired value | Notes |
| • Know the characteristics of a titration curve for strong acid and strong base | 16.4 |
| • Calculate the pH of a titration involving a strong acid and strong base | 16.4 |
| • Know the characteristics of a titration curve for weak acid and strong base | 16.4 |
| • Calculate the pH of a titration involving a weak acid and strong base | 16.4 |
| • Know the characteristics of a titration curve for strong acid and weak base | 16.4 |
| • Calculate the pH of a titration involving a strong acid and weak base | 16.4 |
| • Write solubility product constant expression for slightly soluble compounds | 16.5 |
| • Calculate K _{sp} value for a compound given its solubility | 16.5 |
| • Calculate the solubility of a compound from its given K _{sp} value | 16.5 |
| • Know the relationship of molar solubility and K _{sp} | 16.5 |
| • Calculate solubility of compounds with common ion effect | 16.5 |
| • Predict qualitative and quantitative effects of pH on the solubility of compounds | 16.5 |
| • Calculate the solubility of a slightly soluble salt using bounce-back method | Notes |
| • Predict whether a precipitation occurs given the concentration of its ions | 16.6 |
| • Calculate the cation or anion concentration required for a precipitation to occur | 16.6 |
| • Calculate the ion concentration required for a precipitation to occur in a mixture | 16.6 |
| • Use concept of selective precipitation to predict which ion will in a mixture will precipitate first | 16.6 |
| • Write formation constant (K _f) expressions for complex ions | 16.8 |
| • Calculate the concentration of metal ions in complex-ion equilibria | 16.8 |
| • Calculate the solubility of a slightly soluble compound in presence of the complex-ion | 16.8 |
| • Identify and characterize behavior of amphoteric hydroxides | 16.8 |