DATE: NAME: CLASS:

CHAPTER 9 ANSWER KEY	**Function of the Nephron Loop and the Distal Tubule Answer Key**	BLM 9.2.3A

1. The descending loop is the portion that carries filtrate deep into the renal medulla, away from the cortex. The ascending loop carries filtrate back toward the kidney surface.

2. Water is reabsorbed by osmosis as the filtrate descends because tissue in the medulla becomes increasingly salty with depth.

3. The highest concentration of Na^+ is found in the filtrate at the bottom of the loop.

4. Near the base of the ascending loop, Na^+ diffuses from the filtrate into the nearby blood vessels. Further up the ascending loop at the thick-walled portion that is impermeable to water, Na^+ ions are actively transported into the medulla. Cl^- ions follow by electrostatic attraction.

   (Note: This makes the medulla unique. It is much saltier than other regions in the body and functions in the production of urine in which osmotic pressure (saltiness) is greater than plasma and interstitial fluid.)

5. Reabsorption of salts and water in the distal tubule is similar to that in the proximal tubule, except that the permeability of the distal tubule wall varies depending on the osmotic pressure of body fluids. When one is thirsty, the distal tubule wall is permeable, allowing increased retention of water. (See textbook p. 316.)

6. In the distal tubule, certain wastes and ions are added by active transport into the nephron, becoming part of the urine that is forming. They include excess hydrogen ions (control of blood pH), drugs (such as penicillin), and potassium ions.