

Urinary System

Part A – Multiple Choice

- Which processes accounts for the return of needed nutrients to the blood?
 - Filtration.
 - Secretion.
 - Excretion.
 - Reabsorption.
- Which part of a nephron is **MOST** affected by ADH?
 - Loop of Henle.
 - Collecting duct.
 - Distal convoluted tubule.
 - Proximal convoluted tubule.
- Tubular secretion of histamines occurs in the
 - loop of Henle.
 - collecting duct.
 - distal convoluted tubule.
 - proximal convoluted tubule.
- The pH of blood is increased by the movement of hydrogen ions from the
 - distal convoluted tubule into the peritubular capillaries.
 - peritubular capillaries into the distal convoluted tubule.
 - peritubular capillaries into the proximal convoluted tubule.
 - proximal convoluted tubule into the peritubular capillaries.
- The cells that line the proximal convoluted tubule are specialized for
 - filtration.
 - transport.
 - secretion.
 - contraction.
- In which kidney region are the majority of Bowman's capsules found?
 - Renal vein.
 - Renal pelvis.
 - Renal cortex.
 - Renal medulla.
- Which of the following is **LEAST** likely to be found in the filtrate of a nephron?
 - Water.
 - Proteins.
 - Nutrients.
 - Nitrogenous wastes.
- High solute concentration in the blood (hypertonic blood) is detected by the
 - glomerulus.
 - distal tubule.
 - hypothalamus.
 - posterior pituitary gland.
- Which of the following **MOST** correctly describes the site of urea entry into blood and site of urea removal from blood?
 - Entry at liver, removal at liver.
 - Entry at kidneys, removal at liver.
 - Entry at liver, removal at kidneys.
 - Entry at muscles, removal at kidneys.

10. Which of the following would cause the kidneys to reabsorb more water?
- A. Increased blood volume.
 - B. Increased cardiac output.
 - C. Decreased blood pressure.
 - D. Decreased ADH concentration.
11. Which of the following movements correctly describes the reabsorption of glucose?
- A. From filtrate to blood.
 - B. From blood to filtrate.
 - C. From blood to intestines.
 - D. From intestines to blood.
12. If the pH of blood is too high
- A. more hydrogen, sodium and bicarbonate ions are excreted.
 - B. the kidneys reabsorb increased amounts of water to dilute the pH.
 - C. more hydrogen ions are excreted, while less bicarbonate ions are reabsorbed.
 - D. fewer hydrogen ions are excreted, while more bicarbonate ions are reabsorbed.
13. In which blood vessel of the kidney can the highest concentration of metabolic wastes be found?
- A. Renal vein.
 - B. Renal artery.
 - C. Efferent arteriole.
 - D. Peritubular capillary bed.
14. Urea is a significant component of the fluid that passes from the
- A. distal convoluted tubule into blood.
 - B. glomerulus into Bowman's capsule.
 - C. proximal convoluted tubule into blood.
 - D. peritubular capillary bed into the loop of Henle.
15. Which of the following is a correct function of the peritubular capillary bed associated with a single nephron?
- A. Filtering of blood.
 - B. Reabsorption of nutrients.
 - C. Transport of blood to the liver.
 - D. Gathering wastes for excretion.
16. Deamination of amino acids is **MOST** directly responsible for the metabolic waste
- A. bile.
 - B. urea.
 - C. uric acid.
 - D. ammonia.
17. Which of the following can be found in plasma and urine, but **NOT** in the glomerular filtrate?
- A. Urea.
 - B. Glucose.
 - C. Histamines.
 - D. Inorganic salts.
18. If alcohol intake increases,
- A. ADH secretion increases.
 - B. ADH secretion decreases.
 - C. aldosterone secretion increases.
 - D. aldosterone secretion decreases.
19. Which of the following is a correct pathway of a glucose molecule passing through the kidney of a healthy person?
- A. Glomerulus – Bowman's capsule – loop of Henle – proximal tubule.
 - B. Renal vein – glomerulus – afferent arteriole – peritubular capillaries.
 - C. Afferent arteriole – Bowman's capsule – glomerulus – efferent arteriole.
 - D. Glomerulus – Bowman's capsule – proximal tubule – peritubular capillaries.

20. The cells that line the proximal convoluted tubule are specialized for
 - A. peristalsis.
 - B. transmission of impulses.
 - C. active transport of nutrients.
 - D. intracellular digestion of nutrients.

21. Increased blood volume would most likely result in
 - A. increased aldosterone secretion and increased ADH secretion.
 - B. increased aldosterone secretion, but decreased ADH secretion.
 - C. decreased aldosterone secretion, but increased ADH secretion.
 - D. decreased aldosterone secretion and decreased ADH secretion.

22. Which one of the following structures is physically farthest away from all the others?
 - A. Ureter.
 - B. Distal tubule.
 - C. Loop of Henle.
 - D. Proximal tubule.

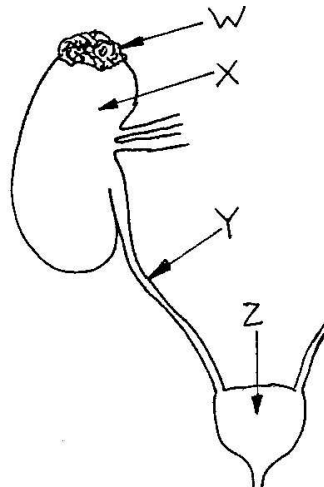
23. Where in the urinary system does peristalsis play a major role in the movement of fluids?
 - A. Ureter.
 - B. Urethra.
 - C. Loop of Henle.
 - D. Collecting duct.

24. Which of the following is **NOT** related to the release and function of aldosterone?
 - A. Secretion.
 - B. Excretion.
 - C. Absorption.
 - D. Elimination.

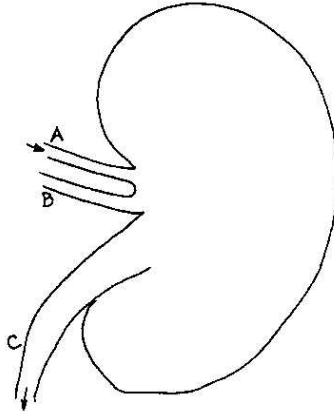
25. Which of the following parts of a nephron is located closest to the renal pelvis?
 - A. Glomerulus.
 - B. Loop of Henle.
 - C. Distal convoluted tubule.
 - D. Proximal convoluted tubule.

Part B – Written Answers

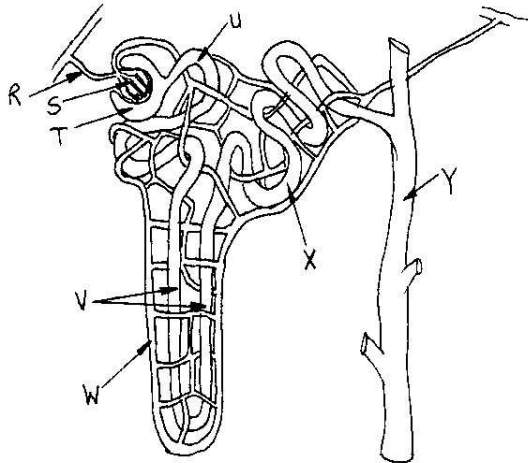
1. How is the pH of blood regulated by urinary system?
2. State **ONE** function of each of the structures indicated in the diagram below.



3. Below is a partially labeled diagram of a kidney.



- Name the labeled structures.
 - Identify **TWO** differences between the fluids in A and B.
 - Identify **TWO** differences between the fluids in A and C.
 - Draw in and label the cortex, medulla and pelvic regions.
 - Draw in and label the location of a nephron and collecting duct.
 - What is the function of the renal pelvis?
4. Name the parts of the following diagram of a nephron and its blood vessels.



- Refer specifically to the structure and function of the parts of a nephron and describe the details of the process of the formation of urine.
- Describe the mechanism of release and action for the following substances.
 - ADH
 - aldosterone