

**L.O. O – 3 Blood in the Renal Artery vs Renal Vein**

- \_\_\_ 1. What is the concentration of urea like in the Renal Artery in comparison to that in the Renal Vein?
- \_\_\_ 2. In Theory, what is the glucose concentration of the Renal Artery in comparison to that of the Renal Vein.
- \_\_\_ 3. In reality, even though we reabsorb all glucose molecules from the nephron filtrate, if serious active transport is happening along much of the nephron, what would happen to the level of glucose in the renal vein in comparison to the renal artery?
- \_\_\_ 4. If someone tested your urine and it tested positive for Glucose, what might that indicate?

**PRACTICE QUIZ:**

- 1 The sequence of structures that urea passes through in the nephron is
  - A. glomerulus, proximal tubule, distal tubule, loop of Henle.
  - B. glomerulus, proximal tubule, capillary network, renal vein.
  - C. proximal tubule, loop of Henle, distal tubule, collecting duct.
  - D. proximal tubule, distal tubule, loop of Henle, collecting duct.
  
- 2 Production of urea occurs in the
  - A. skin.
  - B. liver.
  - C. lungs.
  - D. kidneys.
  
- 3 Hemoglobin pigments are excreted by the:
  - A. liver.
  - B. marrow.
  - C. spleen.
  - D. pancreas.
  
- 4 The collecting ducts are located in which of the following structures?
  - A. ureter
  - B. urethra
  - C. renal pelvis
  - D. renal medulla
  
- 5 Hydrogen ions, penicillin, and histamines are secreted into the urine from the:
  - A. collecting duct into the bladder.
  - B. glomerulus into Bowman's capsule.
  - C. peritubular network into the distal tubule.
  - D. efferent arteriole into the afferent arteriole.
  
- 6 Which structure carries urine from the bladder to the outside of the body?
  - A. ureter
  - B. urethra
  - C. renal pelvis
  - D. collecting duct
  
7. Cells were removed from a part of a kidney nephron and the following characteristics were observed.
  - 1) numerous mitochondria
  - 2) extensive microvilli

In which structure are these cells located?

  - A. glomerulus
  - B. collecting duct
  - C. Bowman's capsule
  - D. proximal convoluted tubule
  
8. The movement of urine from the kidney to the urinary bladder is a function of the
  - A. ureter.
  - B. urethra.
  - C. renal pelvis.
  - D. collecting duct.
  
9. In which of the following groups do all of the organs have an excretory function?
  - A. kidneys, lungs, skin, heart, spleen
  - B. kidneys, lungs, liver, skin, pancreas
  - C. kidneys, lungs, liver, skin, large intestine
  - D. kidneys, liver, eyes, mouth, large intestine
  
10. Where in the kidney could the conditions indicated in the table below be found?

Relative Concentrations in a Human Nephron			
water	glucose	hydrogen ions	urea
low	low	high	high

- A. distal tubule
- B. proximal tubule
- C. afferent arteriole
- D. Bowman's capsule

11. The tube that carries urine out of the bladder is the  
 A. ureter.  
 B. urethra.  
 C. distal tubule.  
 D. collecting duct.

12. When proteins are broken down, urea is produced and enters the blood plasma. Which of the following processes would account for the presence of urea in the nephron?  
 A. pressure filtration at the glomerulus  
 B. tubular excretion in the distal tubule  
 C. active transport in the collecting duct  
 D. facilitated transport in the proximal tubule



13 Which of the following is the correct sequence of structures from highest to lowest concentration of urea?

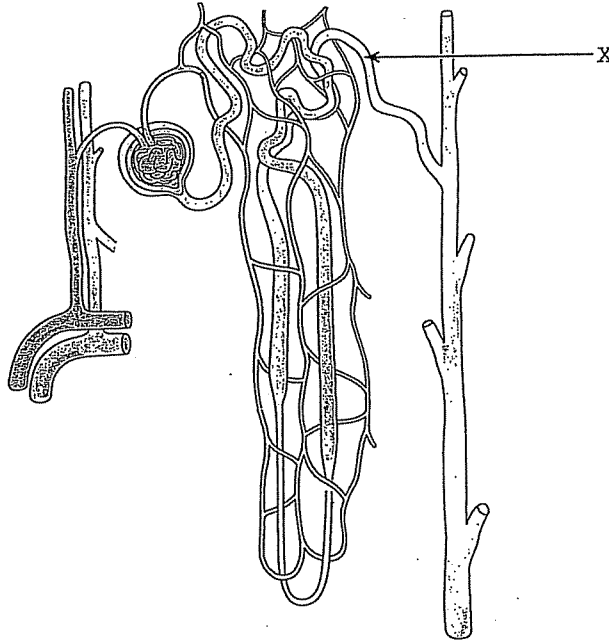
- |                    |
|--------------------|
| 1. proximal tubule |
| 2. renal artery    |
| 3. collecting duct |

- A. 2, 1, 3      B. 2, 3, 1      C. 3, 1, 2      D. 3, 2, 1

14 Identify the correct order of structures through which urine passes on its way out of the body.

- A. renal pelvis → collecting duct → ureter → bladder → urethra  
 B. collecting duct → renal pelvis → ureter → bladder → urethra  
 C. bladder → collecting duct → urethra → renal pelvis → ureter  
 D. urethra → ureter → bladder → renal pelvis → collecting duct

15. The structure labelled X is the



- A. loop of Henle.      B. distal convoluted tubule.  
 C. proximal convoluted tubule.      D. peritubular capillary network.

16 Using the information below, which of the following gives the correct order of urine formation?

1. H<sub>2</sub>O reabsorption
2. tubular excretion
3. pressure filtration
4. selective reabsorption

- A. 1, 3, 4, 2      B. 2, 4, 1, 3      C. 3, 2, 1, 4      D. 3, 4, 1, 2

17 Excretion can be defined as the removal of

- A. toxins from the blood.      B. bacteria from the body.  
 C. metabolic wastes from the body.      D. excess red blood cells from the blood.

18 Which is the correct pathway of a glucose molecule passing through the kidney of a normal healthy person?

- A. glomerulus, Bowman's capsule, loop of Henle, proximal tubule  
 B. glomerulus, Bowman's capsule, proximal tubule, peritubular capillary network  
 C. efferent arteriole, Bowman's capsule, glomerulus, afferent arteriole  
 D. renal vein, glomerulus, afferent arteriole, peritubular capillary network

19. How many of these components of blood plasma are excreted or reabsorbed by the kidneys?

- \* urea
- \* water
- \* glucose
- \* protein
- \* antibodies
- \* hydrogen ions

- A. two      B. three      C. four      D. five

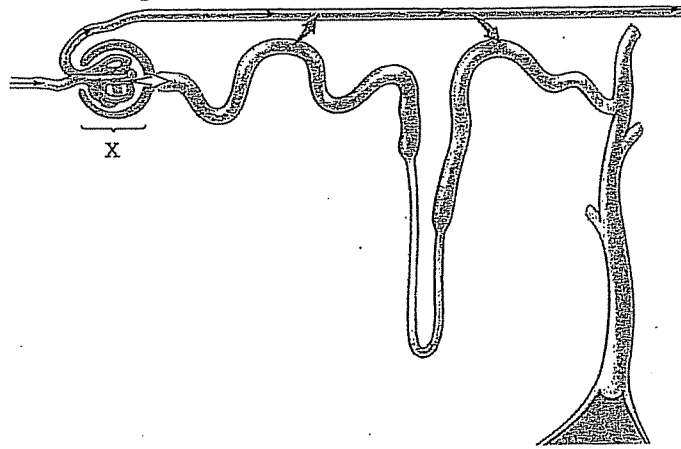
20. The glomerulus is located between the  
 A. afferent arteriole and renal vein.  
 B. afferent arteriole and efferent arteriole.



21 After penicillin is administered for an infection in the urinary bladder, what pathway would penicillin take out of the body?

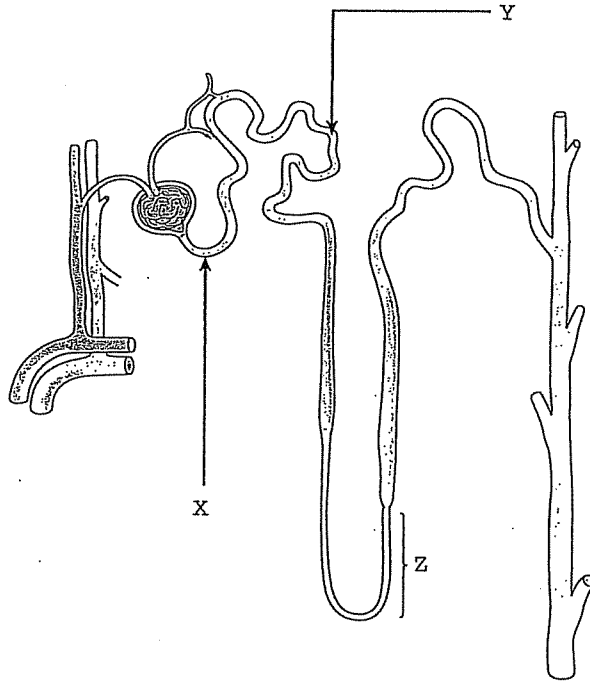
- A. renal artery → afferent arteriole → distal convoluted tubule → loop of Henle → ureter  
 B. glomerulus → efferent arteriole → ureter → renal vein  
 C. efferent arteriole → distal convoluted tubule → collecting duct → urethra  
 D. glomerulus → proximal convoluted tubule → loop of Henle → distal convoluted tubule → collecting duct → urethra

22 During the process occurring at X, some nutrients are separated from



- A. salts.                      B. water.                      C. wastes.                      D. proteins.

Use the following diagram to answer the following questions, 23 + 24



- 23 When compared to location X, the filtrate at location Y would be highest in its concentration of  
 A. urea.                      B. water.                      C. glucose.                      D. blood proteins.
- 24 Which of the following describes the tissues surrounding Z?  
 A. low water content, low salt concentration                      B. low water content, high salt concentration  
 C. high water content, low salt concentration                      D. high water content, high salt concentration
- 25 Which of the following metabolic wastes is excreted by the skin?  
 A. bile                      B. urea                      C. uric acid                      D. carbon dioxide
- 26 The loop of Henle is found in the  
 A. ureter.                      B. urethra.                      C. renal pelvis.                      D. renal medulla.

- 27 Which of the following is excreted by the lungs?  
 A. urea                      B. ammonia                      C. bile pigments                      D. carbon dioxide
28. Uric acid is a waste produced during the breakdown of nucleic acids. Higher than normal levels of uric acid that build up in the joints indicate a malfunction of the  
 A. lungs.                      B. colon.                      C. kidneys.                      D. pancreas.