Renal Physiology: Urine Formation and Kidney Function

Physiology · Answer Key · 20 Questions

1. What are the major functions of the kidneys?

A) Detoxification and elimination of waste
B) Maintaining volume and ionic composition of body fluids
C) Endocrine regulation
D) All of the above

2. Which of the following is NOT part of the functional organization of the urinary system?

A) Kidney
B) Ureters
C) Esophagus
D) Bladder and Urethra

3. What is the functional unit of the kidney?

A) Nephron
B) Renal Lobe
C) Glomerulus
D) Renal Pelvis

4. What is the primary function of the glomerulus?

A) Reabsorption of glucose
B) Filtration of plasma
C) Secretion of hormones
D) Concentration of urine

5. Which arteriole carries blood into the glomerulus?

A) Efferent arteriole
B) Afferent arteriole
C) Renal artery
D) Interlobular artery

6. What is the role of podocytes in the glomerulus?

A) Secretion of renin
B) Formation of the filtration barrier
C) Reabsorption of water
D) Production of erythropoietin

7. What is the role of the proximal convoluted tubule?

A) Fine regulation of reabsorption based on hormonal control
B) Important reabsorption
C) Concentration and dilution of urine
D) Urine is definitive

8. What is the main function of the loop of Henle?

A) Regulation of blood pressure
B) Concentration and dilution of urine
C) Secretion of waste products
D) Reabsorption of glucose

9. Where does the fine regulation of reabsorption occur in the nephron?

A) Proximal convoluted tubule
B) Loop of Henle
C) Distal convoluted tubule
D) Collecting duct

10. What is the role of the juxtaglomerular apparatus?

A) Secretion of erythropoietin
B) Regulation of glomerular filtration
C) Reabsorption of sodium
D) Concentration of urine

11. What percentage of cardiac output do the kidneys receive?

A) 5%
B) 10%
C) 20%
D) 30%

12. What is the correct order of the division of the renal artery?

A) Segmental, interlobar, arcuate, interlobular, afferent arteriole
B) Interlobar, segmental, arcuate, interlobular, afferent arteriole
C) Arcuate, interlobar, segmental, interlobular, afferent arteriole
D) Segmental, arcuate, interlobar, interlobular, afferent arteriole

13. What is the role of the peritubular capillaries?

A) Exchange with renal tissue
B) Filtration of plasma
C) Secretion of hormones
D) Concentration of urine

14. What is the function of the ureters?

A) Storage of urine
B) Transport of urine to the bladder
C) Filtration of blood
D) Production of urine

15. What is the role of the bladder?

A) Filtration of blood
B) Temporary storage of urine
C) Reabsorption of water
D) Secretion of hormones

16. What is the detrusor muscle responsible for?

A) Filtering blood
B) Reabsorbing sodium
C) Storing urine
D) Contraction and relaxation for filling and emptying the bladder

17. What are the two main processes involved in urine formation?

A) Filtration and secretion
B) Reabsorption and excretion
C) Filtration and tubular adjustments
D) Secretion and reabsorption

18. What is the effect of vasoconstriction of the afferent arteriole on GFR?

A) Increases GFR
B) Decreases GFR
C) No change in GFR
D) Increases hydrostatic pressure

19. What hormone promotes sodium reabsorption in the distal tubule and collecting duct?

A) ADH
B) ANF
C) Aldosterone
D) Renin

20. Which part of the nephron is impermeable to water?

A) Descending limb of the loop of Henle
B) Proximal convoluted tubule
C) Ascending limb of the loop of Henle
D) Collecting duct