Urinary System Multiple Choice Practice Test

1. Which of the following is a function of the urinary system?
   a. Regulates water
   b. Regulates balance of acids, bases, and electrolytes
   c. Filters waste from blood
   d. All of the above

2. If a patient is unable to excrete nitrogenous wastes from his or her body, you can conclude that there is an issue with the:
   a. Lungs
   b. Skin
   c. Kidneys
   d. Rectum

3. Renin is a ________ produced by the ________.
   a. Hormone, liver
   b. Hormone, kidney
   c. Enzyme, liver
   d. Enzyme, kidney

4. Erythropoietin is a ________ that serves to ________.
   a. Hormone, regulate blood pressure
   b. Hormone, stimulate red blood cell production
   c. Enzyme, regulate blood pressure
   d. Enzyme, stimulate red blood cell production

5. Kidney cells activate vitamin D.
   a. True
   b. False

6. Kidneys are located in the lower back.
   a. True
   b. False

7. You are a particle in the urine. In which order do you encounter the following organs of the urinary system?
   a. Ureter, urethra, urinary bladder
   b. Ureter, urinary bladder, urethra
   c. Urinary bladder, ureter, urethra
   d. Urinary bladder, urethra, ureter

8. Which is true about the kidneys?
   a. They have very poor blood supply
   b. Both kidneys are located at the same height

9. Which protective layer of the kidney is superficial, made of connective tissue, and holds the kidney in place?
   a. Fibrous capsule
   b. Fatty mass
   c. Perirenal fat capsule
   d. Renal fascia

10. A patient undergoes rapid weight loss, dropping from 60% body at to 25% body fat. Because the fatty tissue decreased rapidly, his kidneys dropped, causing his ureters to bend. As a result, the patient’s urine could no longer move through the ureters, causing excessive pressure on the kidneys. What is this condition called?
   a. Hydronephrosis
   b. Renal calculi
   c. Pyuria
   d. Hematuria

Refer to the following image.

11. Describe the role of structure C.
   a. Nerve supply to allow autonomic responses by the kidney
   b. Duct for the secretion of epinephrine and norepinephrine from the adrenal medulla
   c. Carry urine from kidney to bladder
   d. Hollow tube for lymph, particularly glycerol

12. Structure A is the:
   a. Renal pyramids
   b. Renal medulla
   c. Renal cortex
   d. Renal pelvis
13. Structure A is the:
   a. Renal pyramids
   b. Renal medulla
   c. Renal cortex
   d. Renal pelvis

14. Structure D is the:
   a. Renal pyramids
   b. Renal medulla
   c. Renal cortex
   d. Renal pelvis

15. Which artery will carry blood to the kidney?
   a. Femoral artery
   b. Renal artery
   c. Sciatic artery
   d. Lumbar artery

16. What does PCT stand for?
   a. Parietal capillary tube
   b. Parietal collecting tubule
   c. Proximal convoluted tubule
   d. Podocyte cortical tube

17. Bowman’s capsule is also known as:
   a. Efferent capsule
   b. Afferent capsule
   c. Glomerular capsule
   d. Arcuate capsule

18. Which is the best description of a glomerulus?
   a. Knot of capillaries
   b. Bundle of nerves
   c. Group of octopus-like cells with branching extensions
   d. Cluster of renal columns

19. Nephrons have two main parts. What are they?
   a. Glomerulus, renal tubule
   b. Renal corpuscle, collecting ducts
   c. PCT, DCT
   d. Renal corpuscle, renal tubule

20. How does the structure of a podocyte influence its function?
   a. Flat appearance to allow diffusion of ions and other minerals
   b. Branching extensions with slits create holes for filtration
   c. Many folds increase surface area for absorption
   d. Cilia and ability to secrete mucus create slippery surface

21. Place the following structures in order: PCT, DCT, nephron loop.
    a. PCT, DCT, nephron loop
    b. Nephron loop, PCT, DCT
    c. DCT, nephron loop, PCT
    d. PCT, nephron loop, DCT

22. Cortical nephrons are found in the ________, while juxtamedullary nephrons are found by the ________.
    a. Cortex, cortex-medulla junction
    b. Cortex-medulla junction, cortex
    c. Collecting ducts, renal pyramids
    d. Renal pyramids, renal medulla

23. Which process is not a part of urine formation?
    a. Glomerular absorption
    b. Tubular reabsorption
    c. Glomerular filtration
    d. Tubular secretion

24. This step of urine formation requires a pressure gradient.
    a. Tubular reabsorption
    b. Glomerular filtration
    c. Tubular secretion
    d. None of the above

25. Christine has abnormally low urine output. She measures her urine output to be 87 mL in one day. What is this condition known as?
    a. Oliguria
    b. Anuria
    c. Urethritis
    d. Pyelonephritis

26. When does tubular reabsorption begin?
    a. Filtrate exits PCT
    b. Filtrate enters PCT
    c. Filtrate exits DCT
    d. Filtrate enters DCT

27. When does glucose enter capillary blood?
    a. Tubular reabsorption
    b. Glomerular filtration
    c. Tubular secretion
    d. None of the above

28. Which step is critical for maintaining blood pH?
    a. Tubular reabsorption
    b. Glomerular filtration
    c. Tubular secretion
    d. None of the above
29. Water is transported actively.
   a. True
   b. False

30. Poisons and drugs are transported actively.
   a. True
   b. False

31. It is important to keep glucose and amino acids in the filtrate.
   a. True
   b. False

32. Which of the following is not a nitrogenous waste?
   a. Urea
   b. Uric acid
   c. Uracil
   d. Creatinine

33. Uric acid is the final result of protein metabolism.
   a. True
   b. False

34. Urine will have the same composition as filtrate.
   a. True
   b. False

35. Which is false regarding urine?
   a. Yellow colour comes from the breakdown of hemoglobin
   b. More solvents in the urine cause deeper yellow colour
   c. The colour of urine depends on the diet and disease
   d. Urine is usually an acidic substance

36. Round two! Which is false regarding urine?
   a. The pH of urine can change, depending on diet
   b. Urine weighs more than water
   c. Urine typically contains sodium, potassium, and other ions
   d. Urine typically contains glucose, bile, and proteins

37. Cindy loves sweets. Today, she ate a chocolate cheesecake for breakfast, a plate of brownies for a snack, and enjoyed two donuts in the afternoon. Cindy undergoes a urine test. Which condition might her urologist say that she has?
   a. Pyuria

38. Ureters, structurally and functionally, are most similar to which organ?
   a. Arrector pili
   b. Choroid plexus
   c. Pineal gland
   d. Esophagus

39. The urinary bladder is:
   a. Collapsible
   b. Completely sealed
   c. Anterior to the pubic symphysis
   d. Surrounded by renal calculi

40. How much urine does the bladder normally hold when it is moderately full?
   a. 50 mL
   b. 500 mL
   c. 1000 mL
   d. 5000 mL

41. The internal urethral sphincter is _______ and the external urethral sphincter is _______.
   a. Involuntary, involuntary
   b. Voluntary, voluntary
   c. Involuntary, voluntary
   d. Voluntary, involuntary

42. When the walls of the bladder are stretched, _______ receptors are stimulated.
   a. Pain receptors
   b. Temperature receptors
   c. Proprioceptors
   d. Stretch receptors

43. Incontinence is...
   a. When a person cannot control the internal sphincter
   b. Normal for children younger than two years of age
   c. The same as urinary retention
   d. Caused by hyperplasia (enlargement) of the prostate

44. Blood composition depends on:
   a. Diet
   b. Cell metabolism
   c. Output of urine
   d. All of the above
45. Place the following in order from most water weight to least water weight.
   a. Men > women > babies
   b. Women > babies > men
   c. Babies > women > men
   d. Babies > men > women

46. The majority of the water in the body is found in the extracellular fluid.
   a. True
   b. False

47. Electrolytes are charged particles, also known as ions. They conduct electrical currents.
   a. True
   b. False

48. Which brain structure plays a key role in the thirst mechanism?
   a. Thalamus
   b. Hypothalamus
   c. Medulla oblongata
   d. Frontal lobe

49. Most electrolytes enter the body through the diet.
   a. True
   b. False

50. Which hormone prevents excessive loss of water?
   a. Atrial natriuretic peptide
   b. Antidiuretic hormone
   c. Renin
   d. Cortisone

51. Aldosterone is a hormone produced by the adrenal medulla.
   a. True
   b. False

52. If a person did not produce aldosterone, what would happen?
   a. He or she would have unregulated ion concentrations in the blood
   b. He or she would have highly-regulated ion concentrations in the blood
   c. He or she would be unable to perform bicarbonate buffering
   d. He or she would not experience the thirst mechanism

53. Ions follow water.
   a. True
   b. False

54. Renin induces a combination of chemical reactions that eventually produce angiotensin II.
   a. True
   b. False

55. The renin-angiotensin mechanism is controlled primarily by:
   a. Baroreceptors in blood vessels
   b. Juxtaglomerular cells in kidneys
   c. Collecting ducts in kidneys
   d. Osmoreceptors in the hypothalamus

56. The purpose of the renin-angiotensin mechanism is:
   a. To increase urinary retention to prevent incontinence
   b. To prevent urine from becoming overly concentrated, causing kidney stones
   c. To regulate blood pressure
   d. To prevent alkalosis or acidosis of blood

57. Angiotensin II acts directly on:
   a. Kidneys
   b. Arterioles
   c. Adrenal cortex
   d. B and C

58. Which chemical buffer system plays an important role in maintaining pH in the body?
   a. Bicarbonate
   b. Phosphate
   c. Protein buffer
   d. All of the above

59. Which of the following is false?
   a. Fecal microorganisms cause infections
   b. Bacteria cause sexually-transmitted infections
   c. If renal failure occurs, then dialysis must be done to maintain chemical homeostasis
   d. None of the above are false

60. Which urinary system issue is not the result of age?
   a. Less efficiency of tubule cells
   b. Polycystic kidney and hypospadias
   c. Slower filtration
   d. Decreased ability to concentrate urine
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