4V3 KM

-5 = 90

Student name: [redacted]

1) The greatest output of electrolytes normally is in urine.
   - ● true
   - ○ false

2) How and where are hydrogen ions secreted?
   - A) Passively from the distal tubule
   - B) Passively into the proximal tubule
   - C) Actively into the entire renal tubule
   - D) Actively from the distal tubule

3) What organ contains the detrusor muscle?
   - A) Ureter
   - B) Kidneys
   - C) Urethra
   - D) Urinary bladder

4) The reabsorption of glucose occurs primarily through the walls of the_____.
   - A) nephron loop
   - B) proximal tubule
   - C) distal tubule
   - D) glomerular capsule

5) Glomerular filtration produces about_____ liters of fluid in twenty-four hours.
   - A) 180
   - B) 96
   - C) 144
   - D) 40

6) Where are the paired kidneys located?
   - A) In front of the stomach
   - B) On either side of the urinary bladder
   - C) Behind the parietal peritoneum
   - D) Against the anterior wall of the abdominal cavity

7) Where is the micturition reflex center?
   - A) In the cerebrum
   - B) In the medulla oblongata
   - C) In the hypothalamus
   - D) In the sacral segments of the spinal cord

8) A 60-year-old male begins to notice that he can't control his bladder as efficiently lately. Leakage of urine is starting to become common. What might be the cause of the urinary incontinence?
   - A) An enlarged prostate
   - B) Damaged nephrons
   - C) Enlarged kidneys
   - D) Vitamin D deficiency

9) Increased carbon dioxide production is associated with a(n)_____ in fluid pH.
   - A) increase
   - B) decrease

10) Dehydration can be caused by_____.
   - A) prolonged sleep deprivation
   - B) prolonged vomiting or prolonged diarrhea
   - C) obstruction of airways
   - D) excessive water intake

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11) What is the product of the metabolism of certain nucleic acid bases?
   A) Urea
   B) Water
   C) Uric acid
   D) Ammonia

12) The hormone ADH promotes water reabsorption through the wall(s) of the_____.
   A) descending limb of the nephron loop
   B) proximal tubule and collecting duct
   C) ascending limb of the nephron loop
   D) distal tubule and collecting duct

13) At which structure can water reabsorption be adjusted as needed by the body?
   A) Proximal tubule
   B) Descending limb of the nephron loop
   C) Glomerular capsule
   D) Collecting duct

14) What is nocturnal enuresis?
   A) An infection
   B) A form of kidney cancer
   C) Kidney stones
   D) Bedwetting

15) How do buffer systems minimize pH changes?
   A) By increasing breathing rate
   B) By converting weak acids to strong acids
   C) By promoting the excretion of hydrogen ions
   D) By converting strong acids to weak acids

16) Which of the following is a type of transcellular fluid?
   A) Interstitial fluid
   B) Cerebrospinal fluid
   C) Cytoplasm
   D) Blood plasma

17) How does ADH in the blood influence water output?
   A) The amount of water reabsorbed at the distal convoluted tubules and collecting ducts is altered.
   B) The glomerular filtration rate is altered.
   C) The amount of sodium ions reabsorbed by the distal convoluted tubules and collecting ducts is altered.
   D) The amount of water reabsorbed at the nephron loops is altered.

18) Which of the following is NOT a function of the kidneys?
   A) Synthesis of plasma proteins
   B) Removal of excess chemicals
   C) Removal of metabolic wastes
   D) Maintaining volume, pH, and composition of body fluids within normal ranges

19) Why does drinking alcohol increase the volume of urine produced?
   A) Alcohol blocks the action of atrial natriuretic peptide.
   B) Alcohol inhibits ADH release.
   C) Alcohol stimulates aldosterone release.
   D) Alcohol directly acts on proximal convoluted tubules to increase sodium reabsorption.

20) Barbara has a condition called gout. The inflammation and pain in her joints is due to excess_____ in her plasma, which leads to crystal deposits in her great toe joint.
   A) uric acid
   B) urea
   C) calcium ions
   D) amino acids

21) Which of the following can result in hypernatremia?
   A) Excessive use of antacids
   B) Hypothermia
   C) Excessive fluid intake
   D) Insufficient ADH secretion

22) A nephron consists of what structures?
   A) A bladder and a ureter
   B) A cortex and a medulla
   C) An afferent and efferent arteriole
   D) A renal corpuscle and a renal tubule

23) What are the organs of the urinary system?
   A) The major and minor calyces, renal pelvis, and renal sinus.
   B) The paired kidneys, paired ureters, a bladder and a urethra.
   C) The renal cortex, renal pelvis, and renal medulla.
   D) The glomerular capsule, proximal convoluted tubule, the nephron loop, distal convoluted tubule, and the collecting duct.

24) Aldosterone from the adrenal cortex causes sodium ions to be_____ and potassium ions to be_____.
   A) conserved; excreted
   B) conserved; conserved
   C) excreted; excreted
   D) excreted; conserved

25) What would be the likely outcome if tubular reabsorption in the nephron did not occur?
   A) Accumulation of toxic waste
   B) Cessation of urination
   C) Excessive loss of fluids
   D) Excessive retention of electrolytes and glucose

26) Compared to the body of an average adult male, the body of an average adult female will have_____.
   A) less water and more adipose tissue
   B) more water and more adipose tissue
   C) less water and less adipose tissue
   D) more water and less adipose tissue

27) Why are water balance and electrolyte balance considered to be interdependent?
   A) Because water and electrolytes are both in an ionic state in the blood
   B) Because electrolytes are dissolved in water
   C) Because water dissolves in electrolytes
   D) Because both form ions in blood

28) Factors that alter water balance will also alter electrolyte balance.
   ● true
   ○ false

29) The_____ is the tube that conveys urine outside the body.
   A) collecting duct
   B) nephron loop
   C) ureter
   D) urethra

30) Since hydrostatic pressure in cells and in the surrounding interstitial fluid is typically equal, what is the cause of fluid movement between these two compartments?
   A) Osmotic pressure
   B) Filtration pressure
   C) Active transport
   D) Pinocytosis

31) Which of the following will cause the respiratory center to increase the breathing rate?
   A) Increase in plasma concentration of bicarbonate ion
   B) Increase in plasma osmolarity
   C) Decrease in plasma pH
   D) Decrease in plasma concentration of carbonic acid

32) The concentration of calcium ions in extracellular fluid is regulated by a hormone secreted by the adrenal glands.

33) What is the voluntary component of micturition?
   A) Contraction of the urethra
   B) Relaxation of the external urethral sphincter
   C) Contraction of the detrusor muscle
   D) Relaxation of the internal urethral sphincter

34) What is an effect of hypokalemia?
   A) Acne
   B) Diabetes insipidus
   C) Excessive sweating
   D) Severe arrhythymias

35) The acid-base imbalance that is seen with diseases such as emphysema, in which gas exchange is decreased, is called respiratory acidosis.

36) What does hemodialysis involve?
   A) An artificial liver
   B) A kidney transplant
   C) A bone marrow transplant
   D) An artificial kidney

37) In diabetes mellitus, fatty acids may be incompletely oxidized, leading to the formation of ketone bodies. The accumulation of ketone bodies can lead to_____.
   A) metabolic alkalosis
   B) metabolic acidosis
   C) respiratory alkalosis
   D) respiratory acidosis

38) A decrease in total body water of only_____ will trigger thirst.
   A) 58%
   B) 25%
   C) 1%
   D) 10%

39) Choose the glomerular filtrate list that would indicate an improperly functioning glomerular filtration system.
   A) Water, large proteins, glucose, potassium
   B) Phosphate, potassium, sodium, water
   C) Glucose, amino acids, creatine, urea, bicarbonate
   D) Uric acid, creatinine, phosphate, sodium

40) The renal corpuscle includes what two structures?
   A) Glomerulus and renal tubule
   B) Glomerular capsule and renal tubule
   C) Renal tubule and collecting tubule
   D) Glomerulus and glomerular capsule

41) Certain substances, like caffeine and citrus juices, are classified as diuretics. This means that they cause diuresis in the kidneys. What effect will diuretics have on the urinary system?
   A) They decrease GFR.
   B) They increase amount of urea produced.
   C) They decrease volume of urine excreted.
   D) They increase volume of urine excreted.

42) High concentrations of_____ are found in intracellular fluid.
   A) potassium and phosphate ions
   B) sodium and phosphate ions
   C) chloride and potassium ions
   D) sodium and chloride ions

43) Lara had a procedure in which a gastric band was placed around her stomach, reducing the volume that the stomach could hold. How will this affect her thirst?
   A) She would be more thirsty all of the time.
   B) She will continue to be thirsty after drinking.
   C) Less water intake is needed to satisfy her thirst.
   D) No aspect of her thirst mechanism is altered.

44) Extracorporeal shock-wave lithotripsy is used to treat_____.
   A) kidney failure
   B) kidney stones
   C) a urinary tract infection
   D) gout

45) What is the largest compartment of extracellular fluid?
   A) Transcellular fluid
   B) Plasma
   C) Interstitial fluid
   D) Lymph

46) Which of the following is a normal constituent of urine?
   A) Glucose
   B) Blood
   C) Creatinine
   D) Large proteins

47) In response to the action of_____, sodium ions are conserved and potassium ions are excreted in the urine.
   A) angiotensin
   B) antidiuretic hormone
   C) aldosterone
   D) atrial natriuretic peptide

48) By what route would a person in a moderate environment lose the greatest volume of water?
   A) Urine
   B) Breathing
   C) Feces
   D) Sweat

49) You are dissecting a kidney in class and, after cutting a sagittal section through the kidney, decide to remove some of the lighter-colored inner structures near the superior end of the ureter. You remove a funnel-shaped sac that connects directly into the ureter, along with many tubes that converge to form the funnel-shaped sac. Which structures have you removed?
   A) Adrenal glands
   B) Renal medulla and renal pyramids
   C) Renal pelvis and the calyces
   D) Renal cortex and the renal medulla

50) What is edema?
   A) Hyperproteinemia
   B) Decreased venous pressure
   C) A response to dehydration
   D) Abnormal accumulation of extracellular fluid