Chapter 25-urinary system



Chapter 25-Urinary System Aldosterone is a hormone that causes the renal tubules to reclaim sodium ions from the filtrate. = TRUE The kidneys are stimulated to produce renin _____. = by a decrease in the blood pressure An important characteristic of urine is its specific gravity or density, which is . = 1.001-1.035 Which of the following is the functional unit of the kidney? = Nephron In which part of the kidney is reabsorption (1) dependent upon the body's needs at the time, and (2) regulated by hormones? = Distal convoluted tubule Reabsorption of high levels of glucose and amino acids in the filtrate is accomplished by _____. = secondary active transport Approximately 80% of the energy used for active transport is devoted to the reabsorption of ______. = Sodium Each nephron consists of a , which is a tuft of capillaries, and a . = glomerulus; renal tubule The fluid in the glomerular (Bowman's) capsule is similar to plasma except that it does not contain a significant amount of . = plasma protein What type of capillaries make up the glomerulus? = fenestrated If one says that the clearance value of glucose is zero, what does this mean? = Normally all the glucose is reabsorbed. Incontinence is the inability to control voluntary micturition. = TRUE Which of the choices below is not a method by which the cells of the renal tubules can raise blood pH? by producing new bicarbonate ions | | by secreting sodium ions | | by secreting hydrogen ions into the filtrate | | by reabsorbing filtered bicarbonate ions | The factor favoring filtrate formation at the glomerulus is the . = glomerular hydrostatic pressure Excretion of dilute urine requires . = impermeability of the collecting tubule to water Overall, which of the following pressures is ultimately responsible for glomerular filtration? = net filtration pressure Which of the choices below are the most

important hormone regulators of electrolyte reabsorption and secretion? = angiotensin II and aldosterone Chemicals that enhance urinary output are called ______. = diuretics The mechanism of water reabsorption by the renal tubules is . = Osmosis If the Tm for a particular amino acid is 120 mg/100 ml and the concentration of that amino acid in the blood is 230 mg/100 ml, the amino acid will . = appear in the urine Which of the following best describes kidney function in older adults (70 years or older)? = Kidney function decreases due to kidney atrophy. Which of the choices below is a function of the loop of Henle? = form a large volume of very dilute urine or a small volume of very concentrated urine What is the largest component of urine by weight, other than water? = urea In the kidneys, the countercurrent mechanism involves the interaction between the flow of filtrate through the loop of Henle of the juxtamedullary nephrons (the countercurrent multiplier) and the flow of blood through the limbs of adjacent blood vessels (the countercurrent exchanger). This relationship establishes and maintains an osmotic gradient extending from the cortex through the depths of the medulla that allows the kidneys to vary urine concentration dramatically. = TRUE What is the juxtaglomerular apparatus? = a system that regulates the rate of filtrate formation and systemic blood pressure Blood in the urine may be a symptom of bladder cancer. = TRUE Which of the following is not associated with the renal corpuscle? = vasa recta The collecting duct is impermeable to water in the presence of ADH. = FALSE What would happen if the capsular hydrostatic pressure were increased above normal? = Net filtration would decrease. The ureter transports urine from the kidney to the urinary bladder. = TRUE The function of angiotensin II is to . = constrict arterioles and increase blood https://assignbuster.com/chapter-25-urinary-system/

pressure Which of the following is not a reason why substances are either not reabsorbed or are incompletely reabsorbed from the nephron? | They are extremely complex molecules. || They are not lipid soluble. || They are too large to pass through the fenestrations. || They lack carriers | Which of the following is not one of the things that must happen for micturition to occur? The extrusor muscle must relax || The external urethral sphincter must open | | The detrusor muscle must contract | | The internal urethral sphincter must open | Which of the following substances is not normally found in filtrate? | blood cells and large particles | | ions, such as sodium and potassium | | nitrogenous waste particles, such as urea | | water and small solutes | What is the primary driving force (pressure) that produces glomerular filtration? = hydrostatic pressure of blood (blood pressure) Which of the following would only be found in the glomerular filtrate if the glomerular membrane were damaged?= PROTEIN If the osmotic pressure in the glomerular capillaries increased from 28 mm Hg to 35 mm Hg, would net filtration increase or decrease?(Hydrostatic-(hydro opposed + osmotic pressure) = Net filtration norm is 17 = net filtration would decrease(this would be 10) 60- (15+35)=Calculate the net filtration pressure if capillary hydrostatic pressure is 60 mm Hg, capillary osmotic pressure is 25 mm Hg, and capsular hydrostatic pressure is 10 mm Hg. = 25 mm Hg (Yes, 60 - (25 + 10) = 25 mm Hg. The two pressures that oppose filtration must be subtracted from the force favoring filtration) Water reabsorption through the proximal convoluted tubule is termed obligatory water reabsorption, whereas water reabsorption through the distal convoluted tubule is termed facultative water reabsorption. = TRUE If the GFR is too low, needed substances may pass so quickly through the renal tubules that they are not absorbed and instead are https://assignbuster.com/chapter-25-urinary-system/

lost in the urine. = FALSE(if its too high that would happen) Glomerular filtration is an ATP-driven process. = FALSE Which of the following acts as the trigger for the initiation of micturition (voiding)? = the stretching of the bladder wall The descending limb of the loop of Henle ______. = contains fluid that becomes more concentrated as it moves down into the medulla An excessive urine output is called anuria. = FALSE(polyuria) Which gland sits atop each kidney? = adrenal Which of the following is not a function of the kidneys? | Gluconeogenesis during prolonged fasting || Metabolizing vitamin D to its active form || Producing the hormones melanin and oxytocin || Maintaining the proper balance between water and salts and between acids and baces | A non facting uring sample from an individual who has proviously

and bases | A non-fasting urine sample from an individual who has previously eaten donuts and a soft drink showed the presence of sugar (glucose). Which of the following statement explains the presence of the glucose in the urine? = The individual exceeded the transport maximum. Atrial naturetic peptide inhibits sodium reabsorption. = TRUE The keeps the urethra closed when urine is not being passed from the bladder, and prevents leaking between voiding. = internal urethral sphincter The leading cause of chronic renal disease is hypertension. = False(diabetes no. 1, then hypertension) Fetal kidneys do not have to work very hard because _____. = the placenta allows the mother's urinary system to clear the waste from fetal blood The mechanism that establishes the medullary osmotic gradient depends most on the permeability properties of the . = loop of Henle The position of the kidneys behind the peritoneal lining of the abdominal cavity is described by the term retroperitoneal. = TRUE Which of the following congenital abnormalities of the urinary system is found in male infants only? = Hypospadias Alcohol acts as a diuretic because it . =

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inhibits the release of ADH Under normal conditions, the large renal arteries deliver one-fourth of the total cardiac output (about 1200 ml) to the kidneys each minute. = TRUE Where does most solute reabsorption occur in the

nephron? = Proximal convoluted tubule The renal corpuscle is made up of

. = Bowman's capsule and glomerulus Which of the following is NOT a major urine formation process? | tubular reabsorption | | glomerular filtration | | micturition | | tubular secretion | Place the following in correct sequence from the formation of a drop of urine to its elimination from the body. 1. major calyx 2. minor calyx 3. nephron 4. urethra 5. ureter 6. collecting duct = 3, 6, 2, 1, 5, 4 Glomerular hydrostatic pressure (HPg) is the chief force pushing water and solutes out of the blood and across the filtration membrane. = TRUE Most solutes that are reabsorbed in the proximal convoluted tubule use which of the following pathways? = transcellular During reabsorption of water in the proximal convoluted tubule, what causes water to diffuse from the lumen into the interstitial space? = an increase in the osmolarity of the interstitium The decreased intracellular concentration of sodium in tubular cells during active transport is caused by which of the following mechanisms? = the sodium-potassium ATPase pump in the basolateral membrane The active transport of which ion out of proximal convoluted tubule cells causes the reabsorption of both water and solutes? = sodium Which of the following transporters in the luminal membrane results in secretion? = Na+-H+ countertransport What is the limiting factor for the reabsorption of most actively transported solutes in the proximal tubule? = number of transport carriers in the luminal membrane Which statement is correct? | Most of the water passing through the kidney is eliminated as urine. || Reabsorption of water is hormonally controlled. ||

Normal filtrate contains a large amount of protein. || The excretion of sodium ions is one of the mechanisms that maintains the pH balance of the blood | In the absence of hormones, the distal tubule and collecting ducts are relatively impermeable to water. = TRUE Which part of the brain controls the micturition reflex? = PONS Tubular secretion is effective in controlling blood pH. = TRUE Which hormone(s) is/are required for facultative water reabsorption in the collecting ducts? = ADH Which of the hormones below is responsible for facultative water reabsorption? = ADH What is the function of the juxtaglomerular apparatus? = help regulate blood pressure and the rate of blood filtration by the kidneys Urine passes through the . = pelvis of the kidney to ureter to bladder to urethra Under normal conditions, the proximal convoluted tubule reabsorbs all of the glucose, lactate, and amino acids in the filtrate and 65% of the Na+ and water. = TRUE Obligatory water reabsorption involves the movement of water along an osmotic gradient. = TRUE A disease caused by inadequate secretion of antidiuretic hormone (ADH) by the pituitary gland with symptoms of polyuria is . = diabetes insipidus Which of the choices below is not a function of the urinary system? | regulates blood glucose levels and produces hormones | | maintains blood osmolarity | | helps maintain homeostasis by controlling the composition, volume, and pressure of blood | | eliminates solid, undigested wastes and excretes carbon dioxide, water, salts, and heat | An increase in the permeability of the cells of the collecting tubule to water is due to a(n)

. = increase in the production of ADH