TEST BANK

Done by: Volunteer

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Physiology testbank

هذه الأسئلة تمت الاجابة عليها من قبل احد الدكاترة بإحدى جامعات الطب و ليست من مرجع او كتاب معتمد ، و بعد الفرز تبين وجود بعض الاخطاء و تم اضافة ملاحظة بجانب تلك الاسئلة ، لذلك نرجو الانتباه لهذه الملاحظة و نعتذر في حال وجد اخطاء اخرى لم نكتشفها.

1) An increase in the concentration of plasma potassium causes increase in:

a) release of renin

b) secretion of aldosterone

c) secretion of ADH

d) release of natriuretic hormone

e) production of angiotensin II .

b

2) Amino acids are almost completely reabsorbed from the glomerular filtrate via active transport in the :

a) proximal tubule

b) loop of Henle

c) distal tubule

d) collecting duct

e) renal pelvis

a

3) Glomerular filtration rate would be increased by :

a) constriction of the afferent arteriole

b) a decrease in afferent arteriolar pressure

c) compression of the renal capsule

d) a decrease in the concentration of plasma protein

e) a decrease in renal blood flow

d

4) The greatest amount of hydrogen ion secreted by the proximal tubule is associated with :

a) excretion of potassium ion

b) excretion of hydrogen ion

c) reabsorption of calcium ion

d) reabsorption of bicarbonate ion

e) reabsorption of phosphate ion

d

5) In controlling the synthesis and secretion of aldosterone , which of the following factors is least important ?

a) renin

b) angiotensin II

c) concentration of plasma Na+

d) concentration of plasma K+

e) adrenocorticotropic hormone (ACTH)

e

6) Renal correction of acute hyperkalemia will result in :

a) alkalosis

b) acidosis

c) increased secretion of HCO3

d) increased secretion of H+

e) increased secretion of Na+

b

7) Most of the glucose that is filtered through the glomerulus undergoes reabsorption in the :

a) proximal tubule

b) descending limp of the loop of Henle

c) ascending limb of the loop of Henle

d) distal tubule

e) collecting duct

a

8) Ammonia is an affective important urinary buffer for which of the following reasons :

a) its production in the kidney decrease during chronic acidosis

b) the walls of the renal tubules are impermeable to NH3

c) the walls of the renal tubules are impermeable to NH4

d) its acid base reaction has a low pKa

e) none of the above .

c

9) The amount of potassium excreted by the kidney will decreases if :

a)distal tubular flow increases

b)circulating aldosterone level increase

c) dietary intake of potassium increase

d)Na+ reabsorption by the distal nephron decreases

e) the excretion of organic ions increase .

d

10) In the presence of ADH, The distal nephron is least permeable to :

a) water .

b) ammonia .

c) urea .

d) sodium .

e) carbon dioxide.

c

11) Which of the following substances will be more concentrated at the end of the proximal tubule than at the beginning of the proximal tubule ?

a) glucose .

b) creatinine .

c) sodium .

d) bicarbonate .

b

12) When a person is dehydrated, hypotonic fluid will be found in the:

a) glomerular filtrate .

b) proximal tubule .

c) loop of Henle .

d) distal convoluted tubule .

e) collecting duct .

c

13)Which one of the following statements about aldosterone is correct?

a) it produces its effect by activating C-AMP .

b) it produces its effect by increasing membrane permeability to potassium

c) it causes an increased reabsorption of hydrogen ion.

d) it has its main effect on the proximal tubule .

e) it is secreted in response to an increase in blood pressure .

b

14) The effect of antidiuretic hormone (ADH) on the kidney is to :

a) increase the permeability of the distal nephron to water.

b) increase the excretion of Na+

c) increase the excretion of water

d) increase the diameter of the renal artery .

a

15) In the distal tubules, sodium reabsorption is increased directly by increased :

a) sympathetic nerve stimulation of the kidney .

b) atrial natriuretic hormone secretion .

c) antidiuretic hormone secretion .

d) aldosterone secretion

e) angiotensin secretion

d.

16) The ability of the kidney to excrete a concentrated urine will increase if :

a) the permeability of the proximal tubule to water decreases .

b) the rate of blood flow through the medulla decreases .

c) the rate of flow through the loop of Henle increases .

d) the activity of the Na-K pump in the loop of Henle decreases

e) the permeability of the collecting duct to water decreases .

b

17) The glomerular filtration rate will increase if :

a) circulating blood volume increase .

b) the afferent arteriolar resistance increases .

c) the efferent arteriolar resistance decreases .

d) the plasma protein concentration decreases .

d

18) The volume of plasma needed each minute to supply a substance at the rate at which it is excreted in the urine is known as the :

a) diffusion constant of the substance

b) clearance of the substance

c) extraction ratio of the substance

d) tubular mass of the substance

e) filtration rate of the substance .

b

19) An increase in the osmolarity of the extracellular compartment will:

a) stimulate the volume and osmoreceptors , and inhibit ADH secretion

b) inhibit the volume and osmoreceptors , and stimulate ADH secretion .

c) inhibit the volume and osmoreceptors , and inhibit ADH secretion

d) stimulate the volume and osmoreceptors , and stimulate ADH secretion.

e) cause no change in ADH secretion

d

20) Select the correct answer about proximal tubules :

a) K+ is secreted in exchange with the Na+ which is reabsorbed under the effect of aldosterone

b) glucose , amino acids & proteins are completely reabsorbed

c) only 10% of the filtered water is reabsorbed

d) parathormone increase phosphate reabsorption .

b

21) The primary renal site for the secretion of organic ions e.g urate, creatinine is :

a) proximal tubule

b) loop of Henle

c) distal tubule

d) collecting duct .

a

22) Reabsorption of Na+ :

a) takes place in association with CL- & HCO3 –

b) occurs only in PT

c) is under control of parathormone hormone

d) is a passive process .

a

24) K+ excretion is markedly influenced by :

a) aldosterone

b) amount of Na+ delivered to tubules

c) rate of tubular secretion of H+

d) all of the above .

a **(Not sure)**

25) More hydrogen is secreted in :

a) alkalosis

b) administration of diamox

c) hypokalaemia

d) hyperventilation.

c

26) Major determinants of plasma osmolarity include all the following except:

a) sodium

b) hemoglobin

c) chloride

d) albumin

e) glucose

b

27) The hypothalamus will effect the release of ADH in response to all

the following stimuli except :

a) dehydration

b) severe hemorrhage

c) decreased blood osmolarity

d) pain , anxiety , or surgical stress

e) nicotine

e (not sure)

28) H+ secretion in the distal nephron is enhanced by all the following except :

a) an increase in the level of plasma aldosterone

b) an increase in the tubular luminal concentration of poorly reabsorbable anions

c)hyperkalemia

d) metabolic acidosis

e) respiratory acidosis

c

29) Urinary volume is increased by all the following except :

a) diabetes insipidus

b) diabetes mellitus

c) sympathetic stimulation

d) increased renal arterial pressure

e) infusion of mannitol

c

30) Significant buffers for hydrogen ions generated in the body from anaerobic metabolism include all the following except :

a) extracellular bicarbonate

b) plasma proteins

c) plasma lactate

d) inorganic phosphate

e) intracellular proteins

c

31) Extracellular bicarbonate ions serve as effective buffer for all the following except :

a) sulfuric acid

b) phosphate acid

c) lactic acid

d) carbonic acid

e) ß- hydroxybutyric acid

d

32) All the following statements are true of the H+ secreted into the lumen of the distal nephron except :

a)can combine with Nh4+

b) can combine with HCO3

c) can combine with HPO

d) can remains as free H

e) is secreted by an H+- ATP ase pump

a

33) The glomerular filtration barrier is composed of all the following except :

a) fenestrated capillary endothelium .

b) macula densa .

c) basement membrane .

d) podocytes .

e) mesangial cells .

b

34) The amount of H+ excreted as titratable acid bound to phosphate would be increased by all the following except :

a) an increase in the amount of phosphate filtered at the glomerulus .

b) an increase in the pH of the urine .

c) an increase in the dietary intake of phosphate

d) an increase in the level of plasma parathyroid hormone (PTH)

e) a decrease in the renal tubular maximum (Tm) for phosphate reabsorption .

b

35) Carbonic anhydrase plays an important role in all the following except :

a) the renal handing of HCO3- within the cells of the proximal tubule .

b) the renal handling of HCO3- within the lumen of proximal tubule .

c) the renal handling of HCO3- within the cells of the tubules of the distal nephron

d) the renal handling of HCO3 – within the lumen of the tubules of the distal nephron

e)the gastric secretion of HCI by the parietal cells .

d

36) About the proximal convoluted tubules , all are true except :

a) reabsorb most of Na+ ions in glomerular filtrate

b) reabsorb most of Cl- ions in glomerular filtrate

c) reabsorb most of K+ ions in glomerular filtrate

d) contains JGCs which secrete renin

d

37) About urea , all are true except :

a) concentration rises in tubular fluid as the glomerular filtrate passes down the nephron.

b) is actively secreted by the renal tubular cells

c) concentration in the blood rises slightly after a high protein diet

d) causes osmotic diuresis when its blood concentration is increased .

b

38) The role of the kidney in homeostasis may include which of the following :

a) secretion of certain substances such as renin , kinins and prostaglandins for regulation of arterial blood pressure

b) regulation of ECF composition

c) regulation of red blood cell formation

d) secretion of erythropoietin

e) all are correct

e

39) Which is a feature of the glomerulus :

a) podocyte

b) fenestrated epithelium

c) slit membrane

d) foot processes

e) all are correct

e

40) According to the equation for net tubular transport rate : net transport rate = filtration rate – excretion rate , if the transport rate is positive :

a) secretion must have taken place

b) reabsorption must have taken place

c) excretion rate is in excess of filtration rate

d) solute must have been added to the glomerular filtrate

e) B and D are correct

b

41) Clearance ratio greater than one are most likely seen with substances which are:

a) neither secreted nor absorbed

b) reabsorbed

c) secreted

d) bound to tubular proteins

e) none are correct

c

42) Solute particles move from the plasma of renal glomerulus to the fluid in the bowman's capsule by:

a) bulk flow

b) active transport

c) diffusion

d) renal flow

e) A and C are correct

a

43)The renal threshold for glucose will be decreased by :

a) an increase in glucose Tm

b) a decrease in glomerular filtration rate

c) a decrease in tubular reabsorption

d) A , and C are correct

e) none are correct

C

44) Of the following which are correctly defined or described :

a) filtration fraction : GFR divided by renal plasma flow

b) clearance ratio : renal clearance of one substance divided by the clearance of another substance

c) effective renal plasma flow: volume of plasma flow through the entire renal tissue

d) renal threshold level : at is the maximum amount of a substance transported by renal tubules in minute

e) none is correct

a

45) About 6 days after you place a normal subject on low sodium diet to reduce his weight which of the following is observed :

a) plasma renin and aldosterone below normal

b) plasma renin and aldosterone are above normal

c) plasma sodium concentration is below normal

d) plasma sodium concentration is above normal

e) B and D are correct

b

46) The substance (s) which makes up the greatest part of the reabsorptive "load" in the renal tubules is (are) :

a)urea

b) glucose

c) potassium

d) sodium

e) glycine

d

47)The initial step urine formation is the ultrafiltration at the glomeruli, the forces aiding ultrafiltration include :

a) colloid osmotic pressure of plasma protein

b) glomerular capillary pressure

c) hydrostatic pressure in bowman's capsule

d) crystalloid osmotic pressure of the final urine

e) B and C are correct

b

48) At plasma glucose concentration of 400 mg/dl :

a) clearance of glucose is zero

b) excretion rate of glucose equal the filtration of glucose

c) reabsorption rate of glucose equals the filtration rate of glucose

d) excretion rate of glucose increases with further increasing of plasma concentration of glucose

e) none of the above are correct

d

49)If the clearance of a substance which is freely filtered is less than that of inulin :

a) there is net reabsorption of the substance in the tubule

b) there is net secretion of the substance in the tubule

c) the substance is neither secreted nor reabsorbed in the tubule

d) the substance become bound to protein in the tubule

e) the substance is secreted in proximal tub. to a greater degree than in distal tub.

a

50)Which of the following factors best explain an increase in the filtration fraction :

a) increased urethral pressure

b) increased efferent arteriolar resistance

c) increased plasma protein concentration

d) decreased glomerular capillary hydrostatic pressure

e) decreased glomerular filtration area

b

51)the maximum amount of substances actively transported by renal

tubules per unit time :

a) requires specific transport system for each substance transported

b) depends on the maximum rate at which the transport mechanism itself operate

c) is dependant on tubular load

d) in termed the tubular transport maximum

e) a , b , and d are correct

e

52) Angiotension II, all are correct except :

a) is produced mainly in the lung

b) it causes thirst

c) it stimulates the secretion of ADH

d) it is inactivated by kinase II

e) it causes an increase in arterial blood pressure

d

53)In humans kidney all are true except :

a) renal plasma flow is normally about 650 ml/min

b) blood flow in the cortex is greater than that in the medulla

c) reabsorption of ions and water occurs mainly in the distal convoluted tubule

d) the renal blood flow is decreased in dehydration

e) antidiuretic hormone increases water reabsorption mainly in the collecting ducts

c

54) Regarding the kidney all are true except :

a) there are about one million nephron in each kidney

b) they receive about 20 % of COP art rest

c) they produce aldosterone

d) they produce 1,25 dihydroxycalciferol

e) there are more blood flow through the renal cortex than the renal medulla

c

55)The main barrier preventing the free passage of albumin across the glomerular capillaries is formed of :

a) the fenestrated glomerular endomelium

b) anionic proteoglycan within the glomerular basement membrane

c) the filtration slits in between visceral epithelial cell (podocyte)

d) none are correct

e) all are correct

b

56) The following factor (s) tend to increase GFR :

a) sympathetic stimulation of afferent arterioles

b) obstraction of the urinary tracts

c) VD of efferent arterioles

d) none are correct

e) all are correct

d

57)The following factor (s) tend to increases GFR :

a) decreased albumen concentration in plasma

b) vasodilatation of the afferent arterioles

c) vasoconstriction of the efferent arteriole

d) A and C are correct

e) all are correct

e

58)How is H+ secreted out of the collecting duct cells?

a) primary active transport

b) secondary active transport

c) antiporters

d) symporters

e) airporters

a

59)Which part of the nephron is impermeable to water?

a) descending L of H

b) thick ascending L of H

c) PCT

d) DCT

e) Bowman's capsule

b

60) Renin :

a) increase H2O reabsorption

b) decrease Na+ reabsorption

c) angiotensin II formation

d) increased Na+ reabsorption

e) decreased phosphate reabsorption

c

61) Atrial natriuretic peptides :

a) increased H2O reabsorption

b) decreased Na+ reabsorption

c) AII formation

d) increased Na+ reabsorption

e) decreased phosphate reabsorption

b

62) ADH :

a) increased H2O reabsorption

b) decreased Na+ reabsorption

c) AII formation

d) increased Na+ reabsorption

e) decreased phosphate reabsorption

a

63) AII :

a) increased H2O reabsorption

b) decreased sodium reabsorption

c) AII formation

d) increased Na+ reabsorption

e) decreased phosphate reabsorption

d

64) Which of the following statements is true about proximal tubule :

a) the Na+- K+ ATP ase drives Na+ into the cell from the urine side of the tubule

b) Na+ - H+ exchange is largely the mechanism by which the H+ secretion occurs

c) bicarbonate reabsorption is independent of carbonic anhydrase activity

d) the PH in the luman of proximal tubule can reach an low as 5

b

65)The collecting ducts in the kidney :

a) can secrete water molecules activity into the urine

b) are responsible for most of the reabsorption of water that occurs in the kidneys .

c) determine to a large extent the final osmolarity of urine

d) are rendered impermeable to water by anidiuretic hormone

c

66)Cutting the sympathetic nerves to the bladder may cause :

a) retention of urine .

b) loss of pain sensation in the bladder .

c) periodic micturition .

d) relaxation

67) All of the following lead to a decrease in the filtration fraction EXCEPT

a) increased ureteral pressure

b) increased efferent arteriolar resistance

c) increased plasma protein concentration

d) decreased glomerular capillary pressure

e) decreased filtration area

B

68)What is the clearance of a substance P given that UP = 360 mg/L, V = 0.1 L/hr and PP = 4 mg/L?

a) 220 L/day

b) 2.2 L/day

c) 9 mg/day

d) 18 mg/day

e) None of the above

e

69)Substance X is freely filterable and is neither metabolized nor stored in the kidney. The plasma concentration of X was 500 mg/dl and 250 mg/min appeared in the urine. The inulin clearance was 100 ml/min. The tubular reabsorption of X was:

a) 25 mg/min

b) 250 mg/min

c) 5 mg/min

d) 50 mg/min

e) 500 mg/min

b

70)Urea excretion rate was 10 mg/min. Urea reabsorption rate was 10 mg/min. Plasma urea concentration was 10 mg/dl. GFR was:

a) 100 ml/min

b) 200 ml/min

c) 300 ml/min

d) 350 ml/min

e) 400 ml/min

b