Select the one that is the best answer:

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 .

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

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

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

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)

6) Renal correction of acute hyperkalemia will result in :

a) alkalosis
b) acidosis
c) increased secretion of HCO_3^-
d) increased secretion of H^+
e) increased secretion of Na^+

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

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 NH_3
c) the walls of the renal tubules are impermeable to NH_3
d) its acid base reaction has a low pK_a
e) none of the above .

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 .

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

a) water .
b) ammonia .
c) urea .
d) sodium .
e) carbon dioxide.

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 .

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 .

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 .

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 .

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 .

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 .

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 .

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 .

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

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 .

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 .

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

a) sodium
b) hemoglobin
c) chloride
d) albumin
e) glucose

23) 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

24) 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

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

a)can combine with NH_4^+
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

26) 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 .

27) 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 .

28) 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

29) 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 .

Questions 30 –35:

a. site A b. site B c. site C d. site D E. site E

In this figure, the site at which there is the greatest or highest:

30) Net fluid transport is….
31) Dilution of solutes is….
32) Amino acid reabsorption is….
33) Na+ reabsorption is….
34) Concentration of solutes is….
35) Active Na+ / Cl- is…..

Questions 36 – 38:

Match each of the descriptions below with the appropriate region of the kidney :

36) isotonic reabsorption of sodium.
37) site of the active transport system that makes it possible for the kidneys to excrete a concentrated urine.
38) A capillary network that is found only in the cortex of the kidney.

A- glomerulus.
B- proximal tubule.
C- ascending limp of the loop of Henle.
D- collecting duct .

Key for answers:

Number	Answer	Number	Answer
1	B	22	B
2	A	23	C
3	D	24	C
4	D	25	D
5	E	26	B
6	B	27	B
7	A	28	D
8	E	29	B
9	D	30	A
10	C	31	C
11	B	32	A
12	D	33	A
13	B	34	B
14	A	35	D
15	D	36	A
16	B	37	C
17	A&D	38	A
18	B		
19	D		
20	B		
21	A		

Kidney