

МИНИСТЕРСТВО ОБРАЗОВАНИЯ И НАУКИ  
КЫРГЫЗСКОЙ РЕСПУБЛИКИ  
ОШСКИЙ ГОСУДАРСТВЕННЫЙ УНИВЕРСИТЕТ  
МЕЖДУНАРОДНЫЙ МЕДИЦИНСКИЙ ФАКУЛЬТЕТ  
Кафедра анатомии, гистологии и нормальной физиологии

«Рассмотрено»

на заседании кафедры, протокол. № 3  
от «20» ноября 2021 год  
зав. кафедрой к.м.н., доцент Джолдубаев С.Дж.



«Утверждаю»  
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от «20» ноября 2021 год

Экзаменационные вопросы для студентов «ГМ»  
по специальности «560001 – лечебное дело»  
по дисциплине «Нормальная физиология»  
на 2021-2022 учебный год  
Курс – 2, семестр – 3

Объём учебной нагрузки по дисциплине «Нормальная физиология» составляет:

Всего - 120 часов (4кредита)  
аудиторных - 60 часов  
внеаудиторных (СРС) - 60 часов  
Лекционные занятия – 24 часов  
Практические занятия – 36 часов  
Экзамен - III семестр

Обсужден на заседании кафедры анатомии, гистологии и нормальной физиологии  
от «20» ноября 2021 года, протокол № 3.

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1. Basal vascular tone is caused by:

- A) the influence of the parasympathetic nervous system
- B) automaticity of smooth muscle cells of vessels
- C) the influence of the sympathetic nervous system
- D) humoral effects on blood vessels

2. In which sections of the bloodstream is the intravascular blood pressure the least?

- A) In capillaries
- B) In the arterioles
- C) In the veins
- D) In arteries of large caliber

3. In which departments of the central nervous system are the first neurons of sympathetic innervation of the heart?

- A) In the medulla oblongata
- B) In the lateral horns of the five upper segments of the thoracic spinal cord
- C) In the cervical segments of the spinal cord
- D) In anterior horns of thoracic spinal cord

4. Which vessels show the greatest resistance to blood flow?

- A) In capillaries
- B) In the veins
- C) In the arterioles
- D) In the aorta

5. In which part of the vascular system does the blood move most slowly?

- A) In the aorta
- B) In arteries of large caliber
- C) In the veins
- D) In the capillaries

6. In which part of the heart do the processes of the second neurons of the parasympathetic nerves terminate?

- A) In sinus-atrial and atrioventricular nodes and atrial myocardium
- B) In the working muscles of the ventricles
- C) In the working musculature of the atria
- D) In the left ventricle

7. In which department of the central nervous system are the bodies of the first neurons parasympathetic innervation of the heart?

- A) In the spinal cord
- B) In the hypothalamus
- C) In the medulla oblongata
- D) In the cerebellum

8. Excitation of chemoreceptors of the aortic arch and carotid sinuses, sensitive to hypoxia and hypercapnia, reflexively leads to:

- A) change in the linear velocity of blood flow
- B) narrowing of the vessels
- C) increasing the viscosity of blood
- D) vasodilation

9. A doctor in a 30-year-old woman determined the maximum blood pressure to be 150 mm Hg. Make a conclusion.

- A) Hypertension
- B) BP is normal
- C) Arterial hypotension

10. The time of complete circulation of blood in the cardiovascular system is:

- A) 20-23 s
- B) 1.5-2 minutes
- C) 55-60 seconds
- D) 40-45 sec

11. Select the definition of the arterial pulse.

- A) Rhythmic change in pressure in the cavities of the heart
- B) Rhythmic vibrations of the thoracic wall with contractions of the heart
- C) Stretching of the arterial wall with increasing blood pressure during heart systole
- D) Rhythmic contractions of the heart

12. Heterometric regulation of the heart consists in changing the following indicators (including heart rate - heart rate):

- A) the force of the contractions of the heart with a change in the finite-diastolic length of the muscle fibers
- B) Heart rate when pressure changes in the aorta
- C) Heart rate with a change in the initial length of muscle fibers
- D) the force of contraction of the heart with a change in the pressure in the aorta

13. Hyperpolarization of the membrane in cells of the sinus-atrial node with stimulation of the vagus nerve occurs under the influence of:

- A) acetylcholinesterases
- B) acetylcholine
- C) norepinephrine
- D) epinephrine

14. The homeometric mechanism of heart regulation is:

- A) increased heart rate when the pressure in the aorta changes
- B) increased heart rate with a change in the initial length of muscle fibers
- C) enhancement of cardiac contractions with a change in the initial length of muscle fibers
- D) Increase in heart rate with a change in the pressure in the aorta

15. The diameter of the lumen of the vessels decreases under the action of these biologically active substances, with the exception of:

- A) angiotensin
- B) Vasopressin
- C) serotonin
- D) Histamine

16. Capacitive vessels are called:

- A) Arterioles
- B) veins
- C) capillaries
- D) aorta

17. What elements does the intracardiac reflex arc consist of?

- A) Elements of extracardiac innervation
- B) Elements of the conductive system and slit contacts
- C) Sinus-atrial and atrial-ventricular nodes
- D) From afferent neurons with extension receptors, intercalary neurons and efferent neurons innervating the myocardium

18. The intensity of the blood supply to the organ is estimated as:

- A) volumetric flow velocity
- B) the pulse wave propagation velocity
- C) blood pressure
- D) time of complete blood circulation

19. The incidence of a sphygmographic wave is consistent with time:

- A) slamming the semilunar valves
- B) the moment of rapid expulsion of blood from the ventricle
- C) opening of the semilunar valves
- D) slamming the atrioventricular valves

20. How does the exclusion of vagus nerves (by cutting or introducing atropine) affect the heart rate (heart rate)?

- A) first the heart rate will decrease, then increase
- B) The heart rate will decrease
- C) HR will not change
- D) Heart rate will increase

21. How does the stimulation of the baroreceptors of vascular reflexogenic zones affect the activity of the heart (including heart rate - heart rate)?

- A) Does not affect
- B) The heart rate increases
- C) The force of the heartbeats decreases
- D) Heart rate decreases

22. How does BP change with an increase in physical activity?

- A) Both systolic and diastolic blood pressure do not change
- B) Systolic - decreases, diastolic - increases
- C) Systolic - increases, diastolic - does not change
- D) Systolic - does not change, diastolic - increases

23. What is the difference between the values of systolic and diastolic blood pressure:

- A) The lateral pressure
- B) End-diastolic pressure
- C) The average pressure
- D) Pulse pressure

24. Which waves on the curve of blood pressure in acute experience have the highest frequency?

- A) All of the above
- B) Waves of the third order
- C) Waves of the second order
- D) Waves of the first order

25. What hemodynamic factors affect the magnitude of blood pressure?

- A) The operation of the valvular heart apparatus and the rate of propagation of the pulse wave
- B) Minute volume of blood flow and respiratory excursions
- C) Velocity of pulse wave propagation
- D) Minute volume of blood flow and value of peripheral resistance

26. What hormones stimulate cardiac activity?

- A) Adrenaline, norepinephrine and thyroxine
- B) Serotonin
- C) Thyroxine and insulin
- D) Adrenaline and antidiuretic hormone

27. What nerves that go to the heart have a central tone?

- A) Parasympathetic
- B) None
- C) Sympathetic and parasympathetic
- D) Sympathetic

28. What parameters of BP change in a person after physical exertion?

- A) Nothing changes
- B) The minimum blood pressure
- C) Mean blood pressure
- D) The maximum AD

29. What regulatory mechanisms are considered non-cardiac?

- A) Intercellular interactions
- B) Intracardiac peripheral reflexes
- C) Reflexes involving extracardiac nerves and humoral mechanisms
- D) Humoral mechanisms, peripheral reflexes

30. What regulatory mechanisms are referred to as intracardiac?

- A) Intracellular mechanisms, intercellular interactions, intracardiac peripheral reflexes
- B) Intracellular mechanisms, effects of the nervous system
- C) Intracellular mechanisms, humoral influences, intercellular interactions
- D) Humoral influences, intercellular interactions, peripheral reflexes

31. What reflexes cause irritation of the baroreceptors of the arch of the aorta and carotid sinus?

- A) Does not cause changes
- B) Combined
- C) Pressor

D) Depressor

32. What is the magnitude of the blood pressure in the veins located outside the thorax?

A) 40-50 mm Hg

B) 5-9 mm Hg

C) 25-30 mm Hg

D) 2-3 mm Hg

33. What is the magnitude of the blood pressure at the arterial end of the capillary?

A) 50-60 mm Hg

B) 3-5 mm of mercury.

C) 10-15 mm Hg

D) 20-30 mm Hg

34. What is the magnitude of the blood pressure at the venous end of the capillary?

A) 10-15 mm Hg

B) 45 mm Hg

C) 10 mmHg

D) 3 mm Hg.

35. What is the velocity of the pulse wave propagation through the vessels of the elastically-elastic type of medium diameter?

A) 100-140 cm / s

B) 6-9 m / s

C) 0.5-1 cm / s

D) 1-2 m / s

36. What mechanism underlies the increase in heart rate in the condition of the athlete before the start?

A) Intracardiac peripheral reflex

B) Influence of the carotid sinus

C) Pure hormonal effect

D) Conditionally reflex mechanism

37. Which department of the nervous system performs an extracardiac regulation of the heart?

A) Sympathetic and parasympathetic parts of the autonomic nervous system

B) Somatic and vegetative divisions

C) Somatic and parasympathetic departments

D) Somatic department

38. Which vasodilator is excreted by vascular endotheliocytes?

A) Bradykinin

B) NO (nitric oxide)

C) Serotonin

D) Acetylcholine

39. Blood flow in working skeletal muscles during physical work:

A) does not change

B) is increased after 10 min

C) is increased after 20-30 s

D) is amplified after 0.5-1 s

40. The linear velocity of blood flow in the aorta is:

A) 1 mm / s

B) 0.5 cm / s

C) 0.5-1 m / s

D) 25 cm / s

41. The linear velocity of blood flow in the capillaries is:

A) 0.5 cm / s

B) 25 cm / s

C) 50 cm / s

D) 0.5-1 mm / s

42. The linear velocity of blood flow reflects:

A) the volume of circulating blood (BCC)

B) time of complete blood circulation

C) the amount of blood flowing through the vessel per unit time

D) the velocity of the blood particle along the vessel

43. Method of examination of arterial vessels:

A) pneumography

B) plethysmography

C) sphygmography

D) phlebography

44. Method for recording the vibration of the walls of venous vessels:

A) pneumography

B) phlebography

C) sphygmography

D) plethysmography

45. On the background of a strong stimulation of the vagus nerves, a cardiac arrest occurred. After a while, despite the ongoing irritation, the work of the heart resumed. What is the name of this effect?

A) The phenomenon of escaping

B) The Law of the Ladder

C) Negative inotropic effect

D) The Frank-Starling law

46. What is the mechanism of vasoconstriction resulting from the activation of nerve fibers innervating the smooth muscle cells of the blood vessel.

A) Activation of parasympathetic cholinergic fibers

B) Activation of sympathetic adrenergic fibers and interaction of the neurotransmitter with alpha-adrenoreceptors

C) Activation of sympathetic adrenergic fibers and interaction of the neurotransmitter with beta-adrenergic receptors

D) Activation of sympathetic cholinergic fibers and interaction of the neurotransmitter with M cholinoreceptors

50. What are the main mechanisms of remote regulation of vascular tone.

A) Humoral and neurogenic

B) Myogenic and metabolic

C) Neurogenic and metabolic

D) Humoral and myogenic

51. The greatest number of smooth muscle cells is contained in the wall:

- A) arterioles
- B) lymphatic vessels
- C) venul
- D) capillaries

53. The normal blood pressure level with a decrease in vascular resistance is provided by:

- A) decrease in frequency and increase in the force of contractions of the heart
- B) decrease in the frequency and strength of the contractions of the heart
- C) increase in the frequency and strength of the contractions of the heart
- D) increasing the frequency and decreasing the strength of the contractions of the heart

54. The state of the elastic properties of arterial vessels can be judged by the magnitude:

- A) the velocity of propagation of the pulse wave
- B) the amplitude of the tooth "a" of the phlebogram
- C) heart rate
- D) of the R-R interval on an electrocardiogram

55. Exchange vessels are called:

- A) arteries
- B) veins
- C) arterioles
- D) capillaries

56. The total peripheral resistance of the vessels depends on:

- A) heart rate
- B) linear velocity of blood flow
- C) volumetric flow velocity
- D) the diameter of the lumen and the length of the vessel

57. The volumetric flow velocity reflects:

- A) the volume of circulating blood (BCC)
- B) time of complete blood circulation
- C) the amount of blood flowing through the vascular bed per unit time
- D) velocity of blood particles along the vessel

58. The basic law of the heart (the Frank-Starling law) is based on the mechanism:

- A) homeometric regulation of the heart
- B) heterometric regulation of the heart
- C) humoral regulation of the heart
- D) extracardiac regulation of the heart

59. The main factor of blood flow through the arteries:

- A) the presence of valves
- B) the difference between intravascular and tissue pressure
- C) pressure difference in the proximal and distal parts of the vessels

D) sucking action of the chest at inspiration

60. The main link in the microcirculation system is:

- A) capillaries
- B) arteriolo-venular anastomoses
- C) Venules
- D) Arterioles

61. Under the influence of acetylcholine, the potassium conductivity of the membrane of the cells of the sinus-atrial node:

- A) does not change
- B) first decreases, and then increases
- C) increases
- D) decreases

62. Under the influence of histamine, the diameter of the lumen of peripheral vessels:

- A) increases only in the presence of angiotensin
- B) increases
- C) decreases
- D) does not change

63. When applying acetylcholine to the myocardium occurs:

- A) hyperpolarization of the myocyte membrane
- B) repolarization of the myocyte membrane
- C) depolarization of the myocyte membrane
- D) increased heart rate

64. When norepinephrine is applied to the myocardium,

- A) the polarization of the membrane does not change
- B) hyperpolarization
- C) depolarization of the myocyte membrane
- D) repolarization of the myocyte membrane

65. When the vagus nerve is irritated in the cells of the sinus-atrial node, the following occurs:

- A) lengthening of the phase of diastolic depolarization
- B) repolarization of the membrane
- C) shortening of the phase of diastolic depolarization
- D) membrane depolarization

66. The path traveled by a particle of blood per unit of time reflects:

- A) minute volume of blood flow
- B) linear velocity of blood flow
- C) time of complete blood circulation
- D) volumetric flow velocity

67. Resistive vessels are called:

- A) Arterioles
- B) veins
- C) capillaries
- D) aorta

68. What heart structures are associated intracardiac peripheral reflexes?

- A) With slotted contacts

- B) With intramural ganglia of the myocardium
  - C) With intercellular contacts
  - D) With the elements of the conducting system
69. Sympathetic cholinergic nerve fibers cause in blood vessels:
- A) do not exert a significant influence
  - B) sometimes vasoconstriction, sometimes vasodilation
  - C) vasodilation
  - D) vasoconstriction
70. The speed of propagation of the pulse wave is the higher, than:
- A) greater rigidity of the arterial wall
  - B) less rigidity of the arterial wall
  - C) more force of contractions of the heart
  - D) lower than blood pressure
71. The Vessel Center is located in:
- A) medulla oblongata
  - B) hypothalamus
  - C) the cerebellum
  - D) thalamus
72. Average BP in the performance of physical work:
- A) first increases, and then decreases
  - B) increases
  - C) decreases
  - D) does not change
73. The essence of the method of plethysmography consists in measuring:
- A) volume of an organ or limb depending on blood filling
  - B) partial pressure of oxygen in tissues
  - C) resistance of the tissue to electric current
  - D) blood pressure in different phases of the cardiac cycle
74. In a man of 60 years, the maximum arterial pressure in the brachial artery was 140 mm Hg. Make a conclusion.
- A) Arterial hypotension
  - B) BP is normal
75. Increased blood pressure in the arch of the aorta and carotid sinuses causes:
- A) depressor reflex
  - B) Aschner's heart-shaped reflex
  - C) at rest - pressor reflex, in physical work - depressor
  - D) Pressor reflex
76. The increase in the end-diastolic length of myocardial muscle fibers occurs when:
- A) increase in total peripheral resistance of blood vessels
  - B) reduction of the venous inflow to the heart
  - C) an increase in venous blood flow to the heart
  - D) increasing blood pressure in the aorta

77. What is the name of the researcher who suggested listening to vascular tones when measuring blood pressure?
- A) Samoilov
  - B) Ludwig
  - C) Riva-Rocchi
  - D) Korotkov
78. Elastic-amortization vessels are called:
- A) capillaries
  - B) veins
  - C) large vessels of the elastic and muscular types
  - D) Arterioles
79. The increase in the contraction of the left ventricle with increasing blood pressure in the aorta refers to:
- A) homeometric regulation of the heart
  - B) metabolic regulation of the heart
  - C) extracardiac regulation of the heart
  - D) heterometric regulation of the heart
80. Intensification of myocardial contraction with an increase in the finite-diastolic length of muscle fibers (a heterometric mechanism) is ensured by:
- A) the influence of the vagus nerve on the work of the heart
  - B) intracardiac peripheral reflex
  - B) the mechanism of intercellular interaction
  - D) mechanism of intracellular regulation
81. How can you explain the working hypertrophy of the heart muscle?
- A) Decreased synthesis of contractile proteins
  - B) Increased activity of the conduction system of the heart
  - C) Increasing the number of muscle fibers
  - D) Strengthening the synthesis of contractile proteins
82. What is the maximum (systolic) blood pressure in healthy middle-aged people in the brachial artery?
- A) 95-100 mm Hg
  - B) 140-160 mm Hg
  - C) 110-125 mm Hg
  - D) 60-80 mmHg
83. What is the maximum arterial pressure in the brachial artery of newborns?
- A) 100 mm Hg
  - B) 50 mmHg
  - C) 80 mmHg
  - D) 35 mm Hg.
84. What is the minimum (diastolic) blood pressure in the brachial artery in healthy middle-aged people?
- A) 105-120 mm Hg.
  - B) 90-95 mm Hg
  - C) 35-50 mm Hg
  - D) 60-80 mmHg

85. What is the average blood pressure in a healthy middle-aged person?

- A) 110-120 mm Hg.
- B) 50-70 mm Hg
- C) 90-95 mm Hg
- D) 35-60 mm Hg

86. What is called the law of the heart (Frank-Starling)?

- A) Increased heart rate with increasing pressure in the aorta
- B) Increase in cardiac contraction in proportion to diastolic myocardial dilatation
- C) Decrease in the force of contraction of the heart with an increase in the flow of blood to the heart
- D) Increased cardiac contraction with increased blood pressure

87. The blood flowing to the heart, head and upper limbs of the fetus, is saturated with oxygen on:

- A) 40%
- B) 50%
- C) 60%
- D) 70%

88. Which of the following best describes the oval window?

- A) Resets blood from right to left
- B) Connects the pulmonary artery to the aorta
- C) Resets deoxygenated blood to the left atrium
- D) Function after birth

89. The allocation of a large amount of urine, called:

- a) isostenuria
- b) polyuria
- c) oliguria
- d) anuria.

90. The position of the kidney in relation to the peritoneum:

- a) mesoperitoneal
- b) intraperitoneal
- c) extraperitoneal
- d) underperitoneal

91. A substance produced by the kidneys that regulates blood pressure:

- a) erythropoietic factor
- b) rennin
- c) histamine
- d) glucagon

92. The first phase of urination is:

- a) tubular reabsorption
- b) glomerular filtration
- c) secretion
- d) none of them

93. A large amount of protein in the urine is called:

- a) cylindruria
- b) pyuria
- c) proteinuria
- d) isostenuria

94. Urea in our body is formed during the decay:

- a) proteins
- b) fats
- c) carbohydrates
- d) all listed substances

95. This is the formation of a new glucose molecule.

- a) Glycolysis
- b) Gluconeogenesis
- c) Glucosamine
- d) Glucagon

96. Which of the following is a waste product normally excreted by the kidneys?

- a) Urea
- b) Glucose
- c) Insulin
- d) Cholesterol

97. The portion of the kidney that extends between the renal pyramids is called the

- a) Renal columns
- b) Renal medulla
- c) Renal pelvis
- d) Calyces

98. Which is the correct order of the blood flow?

- a) Renal artery - segmental artery - interlobular artery - peritubular capillaries - afferent arterioles
- b) Interlobular arteries - arcuate arteries - glomerular capillaries - arcuate veins
- c) Arcuate veins - arcuate arteries - glomerular capillaries - renal vein
- d) Interlobar veins - afferent arterioles - efferent arterioles - glomerular capillaries

99. The nephron is:

- a) the site of urine storage
- b) the functional unit of the kidney
- c) the site where ADH is produced
- d) also called the "Bowman's capsule"

100. Increased sympathetic nervous system stimulation of afferent arterioles results in:

- a) decreased filtrate production
- b) increased filtrate production
- c) no change in filtration rate
- d) increased kidney function

101. Renin is produced by:

- a) the glomerulus
- b) macula densa
- c) proximal convoluted tubule
- d) juxtaglomerular cells

102. The function of the macula densa cells is to:

- a) prevent water reabsorption in the ascending loop of Henle
- b) add bicarbonate ions to the tubular filtrate
- c) secrete renin in response to decreased afferent arteriole pressure
- d) monitor NaCl concentration in the filtrate

103. Atrial natriuretic peptide works to:

- a. increase afferent arteriole pressure
  - b. increase blood flow to the kidney
  - c. enhance the effects of ADH
  - d. inhibit the effects of aldosterone
104. If the level of aldosterone in the blood increases, then:
- a. less sodium is excreted in the urine
  - b. less potassium is excreted in the urine
  - c. systemic blood pressure will decrease
  - d. glomerular filtration will decrease
105. The most important function of the juxtaglomerular apparatus (JGA) is to:
- a. secrete water and sodium into the filtrate
  - b. reabsorb sodium
  - c. generate bicarbonate ions in response to decreased blood pH
  - d. secrete renin in response to decreased renal blood pressure or blood flow
106. If the diameter of the afferent arteriole is smaller than the diameter of the efferent arteriole, then:
- a. the net filtration pressure will decrease
  - b. blood pressure in the glomerulus will decrease
  - c. GFR will increase
  - d. a and b only
107. From the distal convoluted tubule, filtrate will then be carried to the:
- a. renal corpuscle
  - b. collecting duct
  - c. nephron loop
  - d. proximal convoluted tubule
108. In a patient who is dehydrated from vomiting and diarrhea, which is likely to be higher than normal in blood:
- a. ADH only
  - b. aldosterone only
  - c. ANP only
  - d. both ADH and aldosterone
109. Regarding the glomerular filtration rate (GFR):
- a) The GFR depends on the pressure in the afferent arterioles.
  - b) A substance that has a clearance less than the GFR must have been secreted by the renal tubules.
  - c) The glomerular filtration rate can be determined by measuring the clearance of insulin.
  - d) The glomerular filtrate has the same composition as plasma.
110. Regarding the transport of glucose by the renal tubules:
- a) In a healthy person, the distal tubules reabsorb all of the filtered glucose.
  - b) Glucose is secreted into the urine in small quantities.
  - c) The transport maximum for glucose is about 36 mg min<sup>-1</sup>.
  - d) Glucose transport by the renal tubules is linked to sodium transport.
111. Concerning the excretion of acid by the kidneys:
- a) The filtered bicarbonate is absorbed by anion transport.
  - b) The intercalated cells of the distal tubule secrete hydrogen ions to reabsorb bicarbonate from the tubule fluid.
  - c) All of the filtered bicarbonate is normally reabsorbed in the first half of the distal tubule.
  - d) Urine pH is normally greater than that of plasma.
112. Regarding the control of water balance by the kidney:
- a) The renal medulla has an osmotic gradient that decreases from the border with the cortex to the renal papilla.
  - b) ADH is secreted by the anterior pituitary in response to a decrease in the osmolality of the blood.
  - c) A normal person cannot produce urine with an osmolality greater than 300 mOsmol.kg<sup>-1</sup>.
  - d) ADH acts on the P cells of the collecting ducts to increase their permeability to water.
113. The term "renal autoregulation" refers in part to the fact that:
- A. the kidney does not require blood flow to sustain its active transport
  - B. the kidney contains baroreceptors (pressure receptors) that contribute to the regulation of cardiac output
  - C. renal blood flow is relatively constant over a wide range of systemic arterial pressures
  - D. renal blood flow is not affected by activation of the sympathetic nerves that innervate the kidney
114. Kidney inflammation may result in the appearance of albumin (a plasma protein) in the urine because:
- A. more albumin enters the proximal tubule in the glomerular filtrate
  - B. reabsorption of albumin from the proximal tubule is inhibited
  - C. secretion of albumin into the distal tubule and collecting ducts is increased
  - D. increased peritubular blood flow makes more albumin available for diffusion into the tubule
115. As blood passes along the glomerular capillaries from afferent to efferent arteriole, the net filtration pressure (D<sub>P</sub>) in the capillary:
- A. increases
  - B. decreases
  - C. first decreases, reaches a minimum about half way along the capillary, then increases
  - D. first increases, reaches a maximum about half way along the capillary, then decreases
116. The rate of water reabsorption from the proximal tubule is determined primarily by the:
- a. rate of dissolved particle (solute) reabsorption from the proximal tubule
  - b. concentration of ADH (antidiuretic hormone) in the blood
  - c. osmotic pressure developed by plasma proteins in the proximal tubule
  - d. active transport of water molecules by the proximal tubule cells



117. Urea has a higher concentration in the fluid that leaves the proximal tubule (and enters the loop of Henle) than in blood plasma because
- urea is synthesized by proximal tubule cells
  - urea is secreted into the proximal tubule
  - urea is reabsorbed from the proximal tubule but at a lesser rate that water is reabsorbed
  - urea diffuses back into the proximal tubule because of the high urea concentration in the renal medulla
118. In the proximal tubule, penicillin is
- actively secreted into the tubule
  - actively reabsorbed from the tubule
  - passively reabsorbed from the tubule
  - metabolized by the tubule cells
119. At which sites would the concentration of creatinine be expected to be highest? (Note: assume the person is normally hydrated.)
- glomerular filtrate
  - end of the proximal tubule
  - end of the loop of Henle
  - urine
120. What factor causes the conversion of fibrinogen into fibrin?
- II factor (prothrombin)
  - IIa factor (thrombin)
  - factor (Stewart-Prower)
  - XII factor (Hageman)
121. Place of synthesis of plasma clotting factors:
- red bone marrow
  - spleen
  - people
  - large intestine
122. Which enzyme breaks down the filaments of fibrin?
- thrombin
  - plasminogen
  - plasmin
  - Prothrombinase
123. Indicate the final product of plasma clotting:
- fibrin monomer
  - fibrinogen
  - fibrin S-soluble
  - fibrin I is insoluble
124. Adhesion of platelets contributes:
- XII (the Hageman factor)
  - collagen
  - ATP
  - ADP
125. Indicate anticoagulants:
- plasmin
  - Heparin
  - citratnatrium
  - prothrombin
126. The first stage of coagulation hemostasis results in the formation of:
- prothrombinases
  - thrombin
  - fibrin
  - plasmin
127. Factors preventing coagulation:
- vascular wall
  - heparin when added to whole blood
  - slowing of blood flow, for example, with prolonged immobility
  - A large number of erythrocytes in capillaries
128. Indicate the basic functions of platelets:
- angiotrophic
  - Installation of bleeding from small vessels
  - stop bleeding from large vessels
  - formation of heparin
129. What are the factors preventing hemocoagulation:
- calcium deficiency in blood plasma
  - heparin for intravenous administration
  - prolonged exercise
  - leukocytosis
130. The deficiency of factor VIII is called:
- haemophilia A
  - hemophilia
  - hemophilia
  - Villebrand disease
131. Thrombocytopenia corresponds to the number of platelets in 1 mm<sup>3</sup> of blood:
- less than 170 thousand.
  - less than 450 thousand.
  - less than 500 thousand.
  - less than 680 thousand.
132. The internal coagulation path starts with activation:
- I factor (fibrinogen)
  - V factor (Ac-globulin)
  - XII factor (Hageman)
  - III factor (tissue factor)
133. Indicate the enzyme, which accounts for 85% of the anticoagulant activity of the anticoagulant system:
- plasmin
  - heparin
  - citratated sodium
  - prothrombin
134. The second stage of coagulation hemostasis results in the formation of:
- prothrombin
  - Prothrombinase
  - thrombin
  - Thromboxane
135. In the platelet nucleus:
- Bean-shaped form
  - is segmented
  - is painted in soft blue tones
  - is absent

136. Name the non-protein coagulation factor:
- prothrombin
  - thrombin
  - calcium
  - Stuart-Prower
137. Platelets are formed:
- in the vascular wall
  - in the red bone marrow
  - in the spleen
  - in the liver
138. Indicate in which of the analyzes the platelet count in 1 mm<sup>3</sup> of human blood corresponds to the norm:
- 1.5 mln
  - 5000
  - 3000
  - 50 thousand
139. Thrombocytes have the structure:
- small, nonnuclear plates of irregular shape
  - denuclearized disks having a biconcave form and having the ability to deform
  - The nuclear cells, colorless, have several types of nuclei differing in structure
140. The main part of the coagulation factors for the chemical structure refers to:
- carbohydrates
  - to the squares
  - Fat
  - to vitamins
141. The third stage of coagulation hemostasis results in the formation of:
- prothrombin
  - Prothrombinase
  - Thrombin
  - Fibrine
142. Maintenance of the liquid state of blood in the body is facilitated by:
- aggregation of platelets
  - high blood flow velocity
  - A single-type electrical charge of the surface of the endothelium and blood cells
  - prothrombinase activity
143. The deficiency of the IX coagulation factor is:
- hemophilia A
  - hemophilia B
  - hemophilia C
  - von Willebrand disease
144. Clotting of the plasma is prevented by:
- thrombin
  - Heparin
  - plasmin
  - X factor
145. The hemostasis system participates in:
- Immune response of an organism to foreign agents
  - Installation of circulations from small and medium arteries and veins
  - Efficient maintenance of the oncotic pressure of blood plasma
  - Maintaining the liquid state of blood in the vascular system
146. External and internal pathways of coagulation hemostasis converge on activation:
- IX of the factor
  - X factor
  - of factor II
  - V factor
147. The transition of the soluble fibrin polymer to an insoluble form takes place under the action of:
- X factor
  - IX of the factor
  - VII factor
  - factor II
148. The deficiency of the XI factor is called:
- hemophilia A
  - hemophilia C
  - Hemophilia B
  - von Willebrand disease
149. Indicate natural primary anticoagulants:
- heparin
  - antitrypsin
  - fibrin degradation products (peptides X, Y, D, E)
  - antithrombin III
150. Indicate natural secondary anticoagulants:
- filaments of fibrin
  - trypsin
  - fibrin degradation products (peptides X, Y, D, E)
  - antithrombin III
151. The respiratory center is located in the \_\_\_\_\_.
- individual body muscles that use up oxygen
  - alveoli
  - medulla oblongata
  - diaphragmatic center
152. Chemical receptors in carotid bodies respond to \_\_\_\_\_.
- hydrogen ion concentration
  - levels of carbon dioxide in the blood
  - levels of oxygen in the blood
  - all of the above
153. When blood levels of carbon dioxide rise, the rate and depth of breathing \_\_\_\_\_.
- decreases
  - increases
  - stays the same
  - stops
154. The respiratory center sends out nerve impulses to the \_\_\_\_\_.

- A. control center in the brain
- B. muscles of the body that regulate use of oxygen
- C. diaphragm and rib cage
- D. carotid and aortic bodies

155. The amount of air moved in and out with each breath is called the \_\_\_\_\_.

- A. vital capacity
- B. tidal volume
- C. residual volume
- D. dead space

156. Air remaining in the lungs after very deep breathing is called the \_\_\_\_\_.

- A. vital capacity
- B. tidal volume
- C. residual volume
- D. dead space

157. The diaphragm and external intercostal muscles are \_\_\_\_\_ when expiration occurs.

- A. contracted
- B. relaxed
- C. flexed
- D. both relaxed (diaphragm) and flexed (intercostal muscles)

158. a voice gap in the transition from silence to conversation

- a) does not change
- b) narrows
- c) expands
- d) doesn't change

159. The substance that causes the activity of the respiratory center:

- a. oxygen
- b. carbon dioxide
- c. glucose
- d. hemoglobin

160. What role does the cortex play in the regulation of respiration?

- a) provides voluntary regulation of breathing
- b) gives information in the structures of the medulla oblongata about the depth of the perfect inspiration
- c) informs the underlying structure of the respiratory center of the CO<sub>2</sub> content in the blood
- d) provides automatic respiration

161. In a deep exhalation, muscles participate:

- a) internal intercostal;
- b) abdominal;
- c) diaphragm;
- d) external intercostal.

162. Air enters the lungs due to:

- a) different concentrations of gases in the lungs and in air;
- b) negative pressure in the pleural cavity;
- c) different density of gases in the lungs and in the ambient air;
- d) positive pressure in the pleural cavity.

163. Lungs never fall off, because:

- a) there is always air in them;
- b) there are cartilages in their walls,
- c) protected by intercostal muscles;
- d) protected by ribs.

164. With injuries to the chest and rupture of the pleura, the lung stops following the walls of the chest cavity, because:

- a. air pressure in the lung becomes greater than outside;
- b. the air pressure outside becomes larger than in the lung;
- c. the air pressure on the lung becomes the same from the outside and from the inside;
- d. the air pressure on the lung becomes very large.

165. Pleural fluid:

- a) protects the lungs from damage;
- b) participates in gas exchange;
- c) reduces friction of the lungs against the walls of the chest cavity;
- d) removes decay products from the lungs.

166. A chemical compound that implements the humoral regulation of respiration, affecting the activity of the respiratory center of the brain:

- a) oxygen;
- b) Carbon dioxide;
- c) glucose;
- d) hemoglobin.

167. At the time of swallowing the following respiratory movements occur:

- a) just breathing in;
- b) only exhalation;
- c) inhaling and exhaling;
- d) holding the breath.

168. The process by which oxygen is transported from the alveoli to the blood:

- a) diffusion;
- b) pinocytosis;
- c) active transport;
- d) breathing;

169. Activities of the digestive system are generally increased by \_\_\_\_\_ nervous stimulation.

- A) sympathetic
- B) parasympathetic
- C) somatic
- D) autonomic

170. The purpose of the soft palate is to \_\_\_\_\_.

- A) house extra taste buds
- B) sense temperature of food before it is swallowed
- C) produce saliva and enzymatic secretions
- D) close off the nasal cavity during swallowing

171. Compared to the others listed below, which type of tooth is more likely to be involved in grinding food?

- A) incisor
- B) cuspid
- C) premolar
- D) molar

172. What mouth part helps to mix food with saliva, moves food toward the pharynx for swallowing, and houses taste receptor cells?

- A) lips
- B) palate
- C) tongue
- D) cheeks

173. Which salivary glands produce the most viscous saliva with lots of mucus?

- A) sublingual glands
- B) submandibular glands
- C) parotid glands
- D) serous cells

174. What initiates the swallowing reflex?

- A) fear of choking on food
- B) the tongue rolling the bolus to the pharynx
- C) sensory receptors detecting the bolus in the pharynx
- D) secretion of saliva at the thought of food

175. The main part of the stomach is the \_\_\_\_\_ of the stomach.

- A) cardiac region
- B) fundic region
- C) body

D) pyloric region

176. Intrinsic factor is secreted by which cells of the gastric glands?

- A) mucous cells
- B) chief cells
- C) peptic cells
- D) parietal cells

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181. How are the components of fats absorbed in the small intestine?

- A) Specific receptor proteins carry fatty acids across the intestinal wall and into the bloodstream.
- B) Fatty acids are transported by active transport to the bloodstream.
- C) Components of lipids diffuse through small intestinal cell membranes, are reconstructed in the cells, then carried off by lacteals as chylomicrons.
- D) Components of lipids diffuse through small intestinal cell membranes and into

the bloodstream where they are carried to the liver for processing.

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184. Which term does not belong with the others?

- A) teeth
- B) mastication
- C) esophagus
- D) tongue

185. Which gland is closest to the joint between the mandible and temporal bone?

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- B) pancreas
- C) submaxillary
- D) parotid

186. The portion of a tooth below the gums is the \_\_\_\_\_.

- A) dentin
- B) crown
- C) root
- D) pulp

187.

The enzyme salivary amylase begins to digest which molecules?

- A) proteins
- B) carbohydrates
- C) lipids
- D) nucleic acids

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Where are the palatine tonsils located?

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- B) pharynx
- C) trachea
- D) esophagus

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The surface area of the stomach is enhanced by the presence of folds called \_\_\_\_\_.

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- B) villi
- C) microvilli
- D) plicae

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Where would the least amount of bacteria be found?

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- B) gravity
- C) adipose
- D) stomach muscles

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The pancreatic duct connects to what part of the digestive tube?

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- B) liver
- C) ileum
- D) duodenum

193.

Which of these does not directly promote the hydrolysis of food?

- A) villi
- B) microvilli
- C) submucosa
- D) mucosa

194.

The outer layer of the intestines is the \_\_\_\_\_.

- A) mucosa
- B) serosa
- C) submucosa
- D) muscularis

195.

Where are the lacteals located?

- A) liver
- B) pancreas
- C) small intestine
- D) large intestine

196.

The appendix is attached to which of the following structures?

- A) transverse colon
- B) descending colon
- C) ascending colon
- D) cecum

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Which of these vitamins is formed by bacteria in the colon?

- A) C
- B) D
- C) B6
- D) K

198. In the lateral region of the hypothalamus there are structures that form the ...

- A) feeling of thirst
- B) feeling of saturation
- C) The feeling of hunger
- D) anorexia

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- A) feeling of saturation
- B) hunger
- C) Thirst
- D) anorexia

200. The main humoral factors regulating the activity of the gastrointestinal tract are ...

- A) nutrients, gastrointestinal hormones, extractives
- B) electrolytes and metabolites
- C) mediators and modulators
- D) vitamins, pheromones

201. In which part of the central nervous system is the center of salivation?

- A) the intermediate brain
- B) The medulla oblongata
- C) The middle brain
- D) the spinal cord

202. Receptors, the irritation of which causes reflex swallowing, are located on ...

- A) Lateral surface of the tongue
- B) front third of the tongue
- C) The surface of the root of the tongue
- D) middle third of the tongue

203. In what range is the pH of the saliva normal?

- A) 3.7-5.7
- B) 5.8-7.8
- C) 7.9-9.0
- D) 1.8-3.3

204. With the least speed from the stomach are evacuated ...

- A) carbohydrates
- B) Fats
- C) proteins

D) vitamins

205. Where is secretin formed?

- A) in the stomach
- B) in the pancreas
- C) in the liver
- D) in the duodenum

206. What factors have a starting influence on the allocation of pancreatic juice?

- A) Humoral
- B) Nervous
- C) Trophic
- D) Endocrine

207. Trypsinogen is activated by ...

- A) secretin
- B) Hydrochloric acid
- C) enterokinase
- D) gastrin

208. What regulatory mechanisms play a leading role in the salivation?

- A) Local
- B) Humoral
- C) Nervous, local, humoral
- D) Nervous

209. What are the leading influences in the regulation of pancreatic secretion?

- A) Local
- B) Nervous
- C) Humoral
- D) Nervous, humoral, local

210. Bile pigments are mainly formed from ...

- A) Cholesterol
- B) bilirubin
- C) hemoglobin
- D) Albumin

211. Bile formation mainly stimulates ...

- A) gastric inhibitory peptide
- B) secretin
- C) vasoactive intestinal peptide
- D) Somatostatin

212. Bile secretion mainly stimulates ...

- A) vasoactive intrastinal peptide
- B) glucagon
- C) cholecystokinin
- D) calcitonin

213. Fat in the duodenum emulsifies ...

- A) bile
- B) lipase
- C) Slime
- D) Hydrochloric acid

214. What is the pH of the intestinal secretion?

- A) neutral
- B) alkaline
- C) acidic
- D) 7.4

215. The main department of the GIT, in which the absorption of products of food and water hydrolysis occurs, is ...

- A) Stomach
- B) Large intestine
- C) Rectum
- D) Small intestine

216. Pepsinogen in the stomach is synthesized ...

- A) Cover cells
- B) mucocytes
- C) chief cells
- D) G-cells

217. What factor is involved in the activation of pancreatic lipase?

- A) trypsin
- B) Bile acids
- C) hydrochloric acid
- D) enterokinase

218. Which of the departments of the gastrointestinal tract performs the function of food deposition?

- A) Small intestine
- B) stomach
- C) The large intestine
- D) rectum

219. What is the main role of gastrin?

- A) activates the enzymes of the pancreas
- B) turns into the stomach pepsinogen in pepsin
- C) stimulates the secretion of the gastric secretion
- D) stimulates the secretion of the pancreas

220. What is the value of the daily volume of gastric secretion in an adult?

- A) 0.1-0.3 l
- B) More than 3 liters
- C) 0.5-0.7 l
- D) 2-2.5 liters

221. What component of the gastric secretion protects the gastric mucosa from self-digestion?

- A) Pepsin
- B) lipase
- C) Gastricin
- D) mucin

222. Which of the listed enzymes of the pancreas do not participate in the hydrolysis of proteins?

- A) carboxypeptidase A
- B) trypsin
- C) chymotrypsin
- D) amylase, lipase

223. Which of the following regulatory peptides enhances the motility of the villi in the small intestine?

- A) Neurotensin
- B) Himodenin
- C) bombesin
- D) Villikinin

224. What produce parietal (obkladochnye) cells of the gastric mucosa?

- A) Pepsinogen
- B) mucin
- C) HCL
- D) Lipase

225. How is the volume of gastric secretion distributed in the cephalic, gastric and intestinal phases?

- A) 10, 50, 40 (%)
- B) 25, 50, 25 (%)
- C) 40, 50, 10 (%)
- D) 20, 70, 10 (%)

226. What is the active reaction of pH of gastric contents on an empty stomach?

- A) 3.1-4.0
- B) 0.8-1.5
- C) 7.0-8.5
- D) 0.1-0.8

227. Proteolytic enzymes of the stomach in an alkaline environment ...

- A) Are activated
- B) are inhibited
- C) Destroyed
- D) Do not change their properties

228. Isolation of a more concentrated but smaller amount of saliva causes irritation ...

- A) The accessory nerve
- B) sympathetic nerve
- C) Parasympathetic nerve
- D) trigeminal nerve

229. Vitamin K participates in the synthesis:

- A) fibrinolytic factors
- B) secondary anticoagulants
- C) primary anticoagulants
- D) clotting factors

230. Inactivation of hydrochloric acid and pepsin in the duodenum occurs under the influence of:

- A) bile
- B) mucoproteins
- C) trypsin
- D) enterokinase

231. What kind of food inhibits gastric secretion?

- A) Meat
- B) Bread
- C) Fish
- D) Fat

232. What vitamins synthesize bacteria in the large intestine?

- A) Vitamin D
- B) Vitamins A and E
- C) Vitamins P and C
- D) Vitamins K and vitamins of group B

233. Which part of CNS control over the appetite, synthesis of fats and their splitting?

A) Hypothalamus

B) Thalamus

C) Cerebellum

D) The middle brain

234. The formation of secretin stimulates:

A) Pepsin

B) trypsinogen

C) hydrochloric acid

D) hydrolysis products

235. Pepsin of gastric juice hydrolyzes:

A) fats

B) proteins

C) mucopolysaccharides

D) Carbohydrates

236. Under the influence of gastrin gastric motility:

A) varies depending on the phase of digestion

B) is amplified

C) does not change

D) weakens

237. Under what conditions does trypsinogen pass into trypsin?

A) Under the influence of gastric juice enzymes

B) Under the influence of bile

C) Under the influence of hydrochloric acid of gastric juice

D) Upon contact with the mucosa of the duodenum and the action of enterokinase

238. Saliva reaction:

A) always alkaline

B) varies depending on the composition of the food

C) always neutral

D) is always acidic

239. With the greatest speed from the stomach are evacuated:

A) peptides

B) carbohydrates

C) fats

D) proteins

240. The secretion of digestive enzymes is inhibited by the hormone:

A) Growth Hormone

B) insulin

C) aldosterone

D) epinephrine

241. Stimulation of which nerve innervating the salivary glands causes a profuse secretion of liquid saliva?

A) Recurrent nerve

B) Sympathetic

C) Additional nerve

D) Parasympathetic

242. The centers of sympathetic innervation of the salivary glands are in:

A) the medulla oblongata

B) the middle brain

C) spinal cord

D) the intermediate brain

243. What causes the swelling of proteins in the digestive tract?

A) Intestinal juice

B) Bile

C) Hydrochloric acid

D) Enzymes

244. How many interchangeable amino acids are there?

A) 12

B) 10

C) 5

D) 20

245. How many essential amino acids are there?

A) 12

B) 8

C) 5

D) 20

246. Enzymes of saliva act mainly on:

A) Carbohydrates

B) fats

C) proteins

D) microelements

247. The swallowing center is located in:

A) the cerebellum

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C) medulla oblongata

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281. The main humoral factors regulating the activity of the gastrointestinal tract are ...

- A) nutrients, gastrointestinal hormones, extractives
- B) electrolytes and metabolites
- C) mediators and modulators
- D) vitamins, pheromones

282. In which part of the central nervous system is the center of salivation?

- A) the intermediate brain
- B) The medulla oblongata
- C) The middle brain
- D) the spinal cord

283. Receptors, the irritation of which causes reflex swallowing, are located on ...

- A) Lateral surface of the tongue
- B) front third of the tongue
- C) The surface of the root of the tongue
- D) middle third of the tongue

284. In what range is the pH of the saliva normal?

- A) 3.7-5.7
- B) 5.8-7.8
- C) 7.9-9.0
- D) 1.8-3.3

285. With the least speed from the stomach are evacuated ...

- A) carbohydrates
- B) Fats
- C) proteins

D) vitamins

286. Where is secretin formed?

- A) in the stomach
- B) in the pancreas
- C) in the liver
- D) in the duodenum

287. What factors have a starting influence on the allocation of pancreatic juice?

- A) Humoral
- B) Nervous
- C) Trophic
- D) Endocrine

288. Trypsinogen is activated by ...

- A) secretin
- B) Hydrochloric acid
- C) enterokinase
- D) gastrin

289. What regulatory mechanisms play a leading role in the salivation?

- A) Local
- B) Humoral
- C) Nervous, local, humoral
- D) Nervous

290. What are the leading influences in the regulation of pancreatic secretion?

- A) Local
- B) Nervous
- C) Humoral
- D) Nervous, humoral, local

291. Bile pigments are mainly formed from ...

- A) Cholesterol
- B) bilirubin
- C) hemoglobin
- D) Albumin

292. Bile formation mainly stimulates ...

- A) gastric inhibitory peptide
- B) secretin
- C) vasoactive intestinal peptide
- D) Somatostatin

293. Bile secretion mainly stimulates ...

- A) vasoactive intrastinal peptide
- B) glucagon
- C) cholecystokinin
- D) calcitonin

294. Fat in the duodenum emulsifies ...

- A) bile
- B) lipase
- C) Slime
- D) Hydrochloric acid

295. What is the pH of the intestinal secretion?

- A) neutral
- B) alkaline
- C) acidic
- D) 7.4

296. The main department of the GIT, in which the absorption of products of food and water hydrolysis occurs, is ...

- A) Stomach
- B) Large intestine
- C) Rectum
- D) Small intestine

297. Pepsinogen in the stomach is synthesized ...

- A) Cover cells
- B) mucocytes
- C) chief cells
- D) G-cells

298. What factor is involved in the activation of pancreatic lipase?

- A) trypsin
- B) Bile acids
- C) hydrochloric acid
- D) enterokinase

299. Which of the departments of the gastrointestinal tract performs the function of food deposition?

- A) Small intestine
- B) stomach
- C) The large intestine
- D) rectum

300. What is the main role of gastrin?

- A) activates the enzymes of the pancreas
- B) turns into the stomach pepsinogen in pepsin
- C) stimulates the secretion of the gastric secretion
- D) stimulates the secretion of the pancreas

301. What is the value of the daily volume of gastric secretion in an adult?

- A) 0.1-0.3 l
- B) More than 3 liters
- C) 0.5-0.7 l
- D) 2-2.5 liters

302. What component of the gastric secretion protects the gastric mucosa from self-digestion?

- A) Pepsin
- B) lipase
- C) Gastricin
- D) mucin

303. Which of the listed enzymes of the pancreas do not participate in the hydrolysis of proteins?

- A) carboxypeptidase A
- B) trypsin
- C) chymotrypsin
- D) amylase, lipase

304. Which of the following regulatory peptides enhances the motility of the villi in the small intestine?

- A) Neurotensin
- B) Himodenin
- C) bombesin
- D) Villikinin

305. What produce parietal (obkladochnye) cells of the gastric mucosa?

- A) Pepsinogen
- B) mucin
- C) HCL
- D) Lipase

306. How is the volume of gastric secretion distributed in the cephalic, gastric and intestinal phases?

- A) 10, 50, 40 (%)
- B) 25, 50, 25 (%)
- C) 40, 50, 10 (%)
- D) 20, 70, 10 (%)

307. What is the active reaction of pH of gastric contents on an empty stomach?

- A) 3.1-4.0
- B) 0.8-1.5
- C) 7.0-8.5
- D) 0.1-0.8

308. Proteolytic enzymes of the stomach in an alkaline environment ...

- A) Are activated
- B) are inhibited
- C) Destroyed
- D) Do not change their properties

309. Isolation of a more concentrated but smaller amount of saliva causes irritation ...

- A) The accessory nerve
- B) sympathetic nerve
- C) Parasympathetic nerve
- D) trigeminal nerve

310. Vitamin K participates in the synthesis:

- A) fibrinolytic factors
- B) secondary anticoagulants
- C) primary anticoagulants
- D) clotting factors

311. Inactivation of hydrochloric acid and pepsin in the duodenum occurs under the influence of:

- A) bile
- B) mucoproteins
- C) trypsin
- D) enterokinase

312. What kind of food inhibits gastric secretion?

- A) Meat
- B) Bread
- C) Fish
- D) Fat

313. What vitamins synthesize bacteria in the large intestine?

- A) Vitamin D
- B) Vitamins A and E
- C) Vitamins P and C
- D) Vitamins K and vitamins of group B

314. Which part of CNS control over the appetite, synthesis of fats and their splitting?

- A) Hypothalamus
- B) Thalamus
- C) Cerebellum
- D) The middle brain

315. The formation of secretin stimulates:

- A) Pepsin
- B) trypsinogen
- C) hydrochloric acid
- D) hydrolysis products

316. Pepsin of gastric juice hydrolyzes:

- A) fats
- B) proteins
- C) mucopolysaccharides
- D) Carbohydrates

317. Under the influence of gastrin gastric motility:

- A) varies depending on the phase of digestion
- B) is amplified
- C) does not change
- D) weakens

318. Under what conditions does trypsinogen pass into trypsin?

- A) Under the influence of gastric juice enzymes
- B) Under the influence of bile
- C) Under the influence of hydrochloric acid of gastric juice
- D) Upon contact with the mucosa of the duodenum and the action of enterokinase

319. Saliva reaction:

- A) always alkaline
- B) varies depending on the composition of the food
- C) always neutral
- D) is always acidic

320. With the greatest speed from the stomach are evacuated:

- A) peptides
- B) carbohydrates
- C) fats
- D) proteins

321. The secretion of digestive enzymes is inhibited by the hormone:

- A) Growth Hormone
- B) insulin
- C) aldosterone
- D) epinephrine

322. Stimulation of which nerve innervating the salivary glands causes a profuse secretion of liquid saliva?

- A) Recurrent nerve
- B) Sympathetic
- C) Additional nerve
- D) Parasympathetic

323. The centers of sympathetic innervation of the salivary glands are in:

- A) the medulla oblongata
- B) the middle brain
- C) spinal cord
- D) the intermediate brain

324. What causes the swelling of proteins in the digestive tract?

- A) Intestinal juice
- B) Bile
- C) Hydrochloric acid
- D) Enzymes

325. How many interchangeable amino acids are there?

- A) 12
- B) 10
- C) 5
- D) 20

326. How many essential amino acids are there?

- A) 12
- B) 8
- C) 5
- D) 20

328. Enzymes of saliva act mainly on:

- A) Carbohydrates
- B) fats
- C) proteins
- D) microelements

329. The swallowing center is located in:

- A) the cerebellum
- B) the intermediate brain
- C) medulla oblongata
- D) the middle brain

330. What is the pH of gastric juice in the presence of protein food?

- A) 4.0-5.5
- B) 0.8-1.5
- C) 5.5-6.0
- D) 7.4-8.0

331. The following fluids are part of the internal environment:

- A) blood, lymph, intercellular fluid;
- B) isotonic solution;
- C) blood plasma;
- D) digestive juices..

332. Homeostasis is:

- A) the destruction of red blood cells;
- B) the ratio of blood plasma and uniform elements;
- C) the formation of a blood clot;
- D) the constancy of indicators of the internal environment.

333. Blood functions do not apply:

- A) trophic;
- B) protective;
- C) synthesis of hormones;
- D) respiratory.

334. The amount of blood in the body:

- A) 6 - 8% of body weight;
- B) 1 - 2% of body weight;
- C) 8 - 10 liters;
- D) 1 - 2 liters.

335. The main organs of the blood depot are:

- A) bones, ligaments;
- B) liver, skin, spleen;
- C) heart, lymphatic system;
- D) the central nervous system.

336. The normal heart rate in an adult at rest is:

- A) 90 - 100 per minute;
- B) 60 - 80 per minute;
- C) 40 - 50 per minute;
- D) 100 - 120 per minute.

337. Can cells of the atrioventricular node spontaneously generate excitation pulses?

- A) can, if the sinoatrial node is blocked;
- B) cannot;
- C) can, if the function of the legs of the bundle of His is impaired;
- D) can, if the function of Purkinje fibers is impaired.

338. Violations of excitability in the heart are manifested:

- A) blockade;
- B) extrasystole;
- C) decompensation;
- D) tachycardia.

339. What is the function of the heart:

- A) blood depot;
- B) hematopoiesis organ;
- C) double-acting pump;
- D) the body of excretion.

340. The Frank-Starling Act is:

- A) decompensation of the heart;
- B) violation of the heart;
- C) an increase in heart rate;
- D) increase the strength of heart contractions in response to the increase in the volume of the heart chambers.

341. The greatest degree of automatism in:

- A) sinoatrial node;
- B) Bachmann bundle;
- C) atrioventricular node;
- D) the legs of the bundle of His.

342. Normally, in a healthy heart, automatism is manifested in:

- A) a typical myocardium;
- B) atrioventricular node;
- C) sinoatrial node;
- D) the bundle of His.

343. Specify the length of the components of the cardiac cycle at the heart rate of 75 bpm. in minutes:

Atrial Systole, Ventricular Systole, General Pause

- A) 0.1s 0.3s 0.4s;
- B) 0.3s 0.4s 0.1s;
- C) 0.4s 0.1s 0.3s;
- D) 0.5s 0.1s 0.2s.

344. P wave on an ECG characterizes:

- A) depolarization of the ventricles;
- B) atrial depolarization;
- C) repolarization of the ventricles;
- D) atrial repolarization

345. The anatomical dead space to perform the following functions:

- A) maintains the partial pressure of oxygen;
- B) warms, moisturizes, purifies the air, includes protective reflexes;
- C) regulates tidal volume;
- D) regulates the composition of the alveolar air.

346. External respiration is:

- A) the exchange of gases between the lungs and blood;
- B) blood gas transport;
- C) gas exchange between atmospheric and alveolar air;
- D) the exchange of gases between blood and tissues. 130

347. The alveoli in healthy people do not stick together. Research Institute, unnecessarily.:

- A) they have a water film;
- B) there are elastic fibers in the wall of the alveoli;
- C) in the alveoli is a surfactant that reduces the surface tension;
- D) pleural leaflets have the ability to absorb water.

348. Indicate the composition of the alveolar air:

- A) O<sub>2</sub> - 14 - 15%, CO<sub>2</sub> - 5.5-6% N<sub>2</sub> - 80%;
- B) O<sub>2</sub> - 16 - 18%, CO<sub>2</sub> - 2.5-4% N<sub>2</sub> - 79.7%;
- C) O<sub>2</sub> - 20.94%, CO<sub>2</sub> - 0.03% N<sub>2</sub> - 79%;
- D) O<sub>2</sub> - 12%, CO<sub>2</sub> - 8% N<sub>2</sub> - 80% .;

349. The intake of air into the alveoli during inspiration occurs due to:

- A) the difference between the arterial pressure and force of lung elasticity
- B) elastic traction of the lungs;
- C) the difference between the atmospheric and intra-alveolar pressure
- D) the difference between the partial pressure of O<sub>2</sub> and CO<sub>2</sub> in alveolar and atmospheric air.

350. With a spasm of the bronchi, the following stage of inspiration is violated:

- A) contraction of the respiratory muscles;
- B) an increase in the volume of the chest;
- C) a decrease in pressure in the pleural cavity;
- D) the movement of air from the environment into the alveoli.

351. The surface of the airways is lined with:

- A) ciliated epithelium;

B)endothelium;  
 C)alveolocytes;  
 D)stratified keratinizing epithelium.

352. Indicate the composition of exhaled air:  
 A) O<sub>2</sub>–14–15%, CO<sub>2</sub> - 5.5 - 8% N<sub>2</sub> - 80%;  
 B)O<sub>2</sub> –16–18%, CO<sub>2</sub> — 2.5–4% N<sub>2</sub> — 79.7%;  
 C)O<sub>2</sub> –20.94%, CO<sub>2</sub> –0.03% N<sub>2</sub> –79%;  
 D)O<sub>2</sub> –12%, CO<sub>2</sub> - 8% N<sub>2</sub> - 80% .; 132

353. Acinus is:  
 A) the upper airways;  
 B)the system of small bronchi;  
 C)respiratory bronchioles, alveolar ducts and alveoli;  
 D)the totality of the alveoli and all airways.

354.The functions of the pleural cavity does not apply:  
 A) reduction of friction during lung movements;  
 B)participation in the biomechanics of respiration;  
 C)protective, restrictive;  
 D)excretion of volatile substances.

355. The final products of protein hydrolysis are:  
 A) fatty acids;  
 B)monosugar;  
 C)polypeptides;  
 D)amino acids.

356. Features of membrane digestion:  
 A) enzymes are fixed;  
 B)enzymes are not fixed;  
 C)a large number of digestive juices;  
 D)the initial stage of digestion.

357. Food is in the oral cavity:  
 A) 3-5 minutes;  
 B)15–20 sec .;  
 C)25-30 sec .;  
 D)1-2 minutes

358. In the regulation of salivation, the main role belongs to:  
 A) local regulation;  
 B)neuro-reflex regulation;  
 C)humoral regulation;  
 D)neurohumoral regulation.

359. Motility of the oral cavity is:  
 A) chewing;  
 B)peristalsis;  
 C)rhythmic segmentation;  
 D)pendulum-like.

360. Secretion in the digestive tract is:  
 A) the production of gastrointestinal hormones;  
 B)the selection of hydrolysis products in the internal environment;  
 C)absorption of bioactive substances from the digestive tract into the blood;  
 D)the production of digestive juices.

361. The final products of fat hydrolysis are:  
 A) fatty acids and glycerin;

B)monosugar;  
 C)amino acids;  
 D)peptides.

362. Main absorption of water and nutrients proceeds goes to:  
 A) the oral cavity;  
 B)the stomach;  
 C)the small intestine;  
 D)the large intestine.

363. Incretion in the digestive tract is:  
 A) the production of gastrointestinal hormones;  
 B)the selection of hydrolysis products in the internal environment;  
 C)absorption of bioactive substances from the digestive tract into the blood;  
 D)the production of digestive juices.

364. The first Russian scientist awarded the Nobel Prize for work on digestion:  
 A) I.P. Pavlov;  
 B)V.A. Bass;  
 C)A.M. Ugolev;  
 D)R. Heidengain. 143

365. Functions of the oral cavity:  
 A) grinding, wetting, the formation of a food lump;  
 B)food deposition, hydrolysis of fats;  
 C)the final hydrolysis of nutrients, the absorption of amino acids;  
 D)hormone production, nutrient absorption, increment.

366. Unconditioned salivary reflexes begin with:  
 A) oral thermoreceptors;  
 B)visual and olfactory receptors;  
 C)taste buds of the oral cavity;  
 D)pain receptors.

367. Nutrients include:  
 A) water, sodium, potassium, calcium;  
 B)vitamins, minerals;  
 C)proteins, fats, carbohydrates;  
 D)cellulose, pectin.

368. The amount of saliva secreted per day, normally healthy man:  
 A) 0.5 l;  
 B)1,5 - 2 l;  
 C)300 ml;  
 D)2.5 - 3

369. Normally, the basal metabolic rate in a person weighing 70 kg is equal to:  
 A) 1700 kcal / min;  
 B)2600 kcal / hour;  
 C)4200 kcal / day;  
 D)1700 kcal / day

370. The daily diet of an adult engaged in mental work should include:

A) 70 g of protein, 80 g of fat, 350 g of carbohydrates;  
 B) 400 g of protein, 100 g of fat, 80 g of carbohydrates;  
 C) 400 g of protein, 70 g of fat, 100 g of carbohydrates  
 D) 50 g of protein, 400 g of fat, 400 g of carbohydrates.

371. The thermoregulation center is located in:  
 A) the cerebellum;  
 B) the middle brain;  
 C) the medulla oblongata;  
 D) the hypothalamus.

372. Using direct calorimetry, energy consumption is accurately determined for:  
 A) 1 minute;  
 B) 3 hours;  
 C) 6 hours;  
 D) day.

373. RQ (respiratory quotient) is:  
 A)  $O_2 / CO_2$ ;  
 B)  $N_2 / CO_2$ ;  
 C)  $CO_2 / O_2$ ;  
 D)  $O_2 / N_2$ .

374. A woman of middle age, height 168 cm and weight 68 kg corresponds to the following value of the main exchange  
 A) 500 kcal / day .;  
 B) 1000 kcal / day .;  
 C) 2200 kcal / day .;  
 D) 1500 kcal / day.

375. The respiratory quotient reflects:  
 A) the amount of oxidizable components;  
 B) the qualitative composition of the oxidizable components;  
 C) the energy value of oxidizable substances;  
 D) the composition of the food.

376. In the kidneys are secreted:  
 A) glucose and amino acids;  
 B) vitamins and water;  
 C) proteins and salts;  
 D) potassium ions and medicinal substances.

377. The hormone aldosterone is released into the bloodstream when:  
 A) decrease in the concentration of sodium in plasma and a decrease in bcc;  
 B) an increase in the concentration of sodium in plasma and an increase in bcc;  
 C) increasing the concentration of H ions in plasma and lowering the pH;  
 D) the accumulation of lactic acid and the development of acidosis.

378. The main factors influencing the rate of filtration in the nephrons are:

A) hydrostatic pressure, oncotic blood pressure, intrarenal pressure;  
 B) osmotic pressure, blood pH;  
 C) only intrarenal pressure and oncotic blood pressure;  
 D) partial pressure of gases.

379. The composition of primary urine does not include:  
 A) urea; 171  
 B) red blood cells;  
 C) vitamins;  
 D) amino acids.

380. What is the factor that does not affect the glomerular filtration rate:  
 A) the number of active nephrons;  
 B) the composition of the formed elements of the blood;  
 C) the filtration surface of the glomerular capillaries;  
 D) the amount of blood passing through the kidneys per unit time.

381. If 180 l of primary urine is formed per day, then in 1 minute of ultrafiltrate the following is formed:  
 A) 25 ml .;  
 B) 18 ml .;  
 C) 125 ml .;  
 D) 1.5 liters.

382. The rate of formation of primary urine 125 ml / min. - per day ultrafiltrate is formed:  
 A) 180 l .;  
 B) 180 ml .;  
 C) 1.5 l .;  
 D) 125 l.

383. In the descending sections of the loop of Henle nephrons occurs:  
 A) urine dilution;  
 B) urine concentration; 172  
 C) the formation of ultrafiltrate;  
 D) secretion of water and salts.

384. The process of moving the substances from the blood capillaries into the channels gical called nephron:  
 A) synthesis;  
 B) secretion;  
 C) reabsorption;  
 D) filtration.

385. Kidney filtration is:  
 A) the process of transition of water and substances dissolved in it from the blood to the Bowman-Shumlyansky capsule;  
 B) the transition of water and substances dissolved in it from the blood into the loop of Henle;



C)the process of transition of water and substances dissolved in it from the tubules into the blood;

D)the transition of water and substances dissolved in it from the tubules into collecting ducts.

386. When using a large amount of salted cabbage diuresis:

A) does not change;

B)increases;

C)decreases;

D)is accompanied by hematuria.

387. Specify renal origin increasing substances present in blood pressure:

A) ammonia;

B)urokinase;

C)renin;

D)urea.

388. The juxtaglomerular apparatus of the kidney secretes into the blood:

A) aldosterone;

B)sodium uretic factor;

C)angiotensin;

D)renin

389. Secretion, one of the processes of urination, occurs:

A) in capsules Bowman - Shumlyanskogo nephrons;

B)from the blood to the renal tubules of the nephrons;

C)from blood to the loop of Henle nephrons;

D)from the distal tubules of the nephrons into the blood.

390. The rotary countercurrent system in nephrons is:

A) proximal tubules and loop of Henle;

B)the loop of Henle, and collecting duct Entangling them with vortices;

C)distal tubules of nephrons;

D)proximal tubules of nephrons.

391. The transition of water and solutes from the blood capillaries into the Bowman's capsule - nephron is called:

A) synthesis;

B)secretion;

C)reabsorption;

D)by filtration.