


Ministry of Science and High Education of the Russian Federation Ulyanovsk State University	Form	
F- Questions for the credit		

Questions for credit «Physiology of Visceral System»

1. Excitability of the heart muscle.
2. Contractility of the heart muscle. Extrasystole.
3. Conduction of the heart muscle. Holding excitement in the heart.
4. Heart Automation.
5. Conductive system of the heart. The experience of Stanius.
6. The ratio of excitation, contraction and excitability in different phases of the cardiac cycle.
7. Self-regulation of the heart.
8. Nervous regulation of the heart.
9. Reflexes of the heart.
10. Humoral effects on the work of the heart.
11. Integration of mechanisms regulating the work of the heart.
12. Heart beat, heart sounds and their origin.
13. ECG, vector cardiography.
14. Phonocardiography.
15. Phases of the heart cycle.
16. Classification of the cardiovascular system.
17. The basic laws of hydrodynamics and their use to explain the physiological patterns of blood movement in vessels
18. Factors that ensure the movement of blood through the vessels.
19. Change in resistance, blood pressure and blood flow velocity in various parts of the vascular bed.
20. Arterial and venous pulse.
21. Blood circulation time
22. Blood pressure and methods for measuring it (according to Korotkov and Riva-Rochi).
23. Regulation of blood pressure.
24. Capillary blood flow, microcirculation.
25. The importance of respiration for the body.
26. The main stages of breathing.
27. External respiration.
28. The mechanism of ventilation.
29. Respiratory muscles, the effect of their contractions on the volume of the chest.
30. The mechanism of inhalation and exhalation.
31. Pressure in the pleural cavity.
32. The elastic properties of the lungs.
33. Surfactant. Its nature and significance.
34. The mechanism of active and passive inhalation and exhalation.
35. Spirometry, spirometry, pneumatography.
36. Physiology of the respiratory tract.
37. Gas exchange in the lungs. Composition of inhaled, exhaled, alveolar air.
38. Blood gas transport.
39. Oxyhemoglobin dissociation curve, factors affecting the course of the curve.

40. Gas exchange in tissues.
41. Respiratory Center (N.A. Mislavsky). Automation of the respiratory center.
42. The role of mechanoreceptors of vagus lung and afferent fibers in the regulation of respiration.
43. Reflex self-regulation of respiration. The mechanism of change of respiratory phases.
44. The main physiological mechanisms of changes in respiration when climbing to a height.
45. Goering-Breyer reflexes. Respiration at high and low atmospheric pressure.
46. The role of humoral factors in the regulation of respiration.
47. The effect on the respiratory center of the gas composition and the pH of the blood and cerebrospinal fluid.
48. Peripheral and central chemoreceptors.
49. Regulatory effects on respiration from the hypothalamus, limbic system, and cerebral cortex.
50. Protective respiratory reflexes.
51. Functional breathing system, ensuring the constancy of the gas composition of the blood.
52. Digestion is the main component of a functional system that maintains a constant level of nutrition in the body.
53. The importance of digestion, the function of the digestive tract.
54. Types of digestion depending on the features of hydrolysis and its localization.
55. Methods of studying the functions of the digestive tract (I.P. Pavlov).
56. Methods of studying the activity of the digestive system in humans.
57. Digestion in the oral cavity.
58. The amount, composition and properties of saliva.
59. Salivation mechanism.
60. Swallowing and its phases.
61. Digestion in the stomach. Gastric juice, its composition and properties.
62. Regulation of gastric secretion. Secretory nerves of the stomach.
63. The effect of humoral factors on the work of the gastric glands.
64. The adaptive nature of gastric secretion.
65. Exocrine pancreatic activity. The amount, composition and properties of pancreatic juice.
66. Nervous and humoral regulation of pancreatic secretion.
67. The role of the liver in digestion.
68. The barrier role of the liver.
69. Digestion in the jejunum and ileum.
70. The secretion of intestinal juice, its composition, properties, regulation.
71. Oral and membrane hydrolysis of food substances.
72. Digestion in the colon.
73. Types of contraction of the stomach. Their role in gastric digestion.
74. Evacuation of gastric contents into the intestines.
75. The effect of gastric and intestin hormones on the motor function of the stomach.
76. Motor activity of the small intestine.
77. Types and mechanism of absorption of substances through the membrane.
78. Absorption in various parts of the digestive tract.
79. Absorption of water and minerals.
80. Absorption of hydrolysis products of proteins, fats and carbohydrates.
81. Parietal digestion.
82. The general concept of metabolism in the body.
83. The processes of assimilation and dissimilation of substances.
84. Plastic and energy role of substances.

85. Balance of receipt and consumption of substances.
86. Nitrogen balance. Positive and negative nitrogen balance.
87. Regulation of the metabolism of nutrients in the body.
88. The energy balance of the body.
89. The caloric value of food.
90. Direct and indirect calorimetry.
91. Calorimetric equivalent and its meaning.
92. Respiratory rate and its value.
93. The main exchange, its size and factors influencing it.
94. Hess law.
95. The laws of the preparation of the diet.
96. The formation and secretion of hormones, their transport by blood, the effect on cells and tissues.
97. The relationship and interaction of the endocrine glands.
98. Pituitary hormones. Functional relationships of the hypothalamus with the pituitary gland. The role of the pituitary gland in the regulation of endocrine organs.
99. Thyroid gland.
100. The parathyroid glands and the role of thyrocalcitonin in the regulation of calcium and phosphorus metabolism.
101. Pancreatic hormones.
102. Adrenal hormones.
103. Sex hormones.
104. Excretory organs.
105. Nephron as a structurally functional unit of the kidney.
106. The main processes occurring in the kidney: filtration, reabsorption, secretion.
107. The formation of primary urine, its composition.
108. Features of the mechanisms of reabsorption of water, salts and organic substances. The concept of selective and mandatory reabsorption.
109. The formation of final urine.
110. Mechanisms for regulating the activity of the kidneys.
111. The effect of blood pressure and blood supply to the tubules on the formation of urine.
112. Humoral regulation of kidney activity.
113. Reflex mechanisms.
114. The role of the spinal cord and brain in the regulation of kidney activity (K.M. Bykov).
115. The participation of the kidneys in the FUS, ensuring the constancy of the osmotic pressure of the blood, the volume of body fluid.
116. Heat production. Metabolism as a source of heat. The role of individual organs in heat production. Physiological mechanisms of heat transfer.
117. Heat transfer. Methods of heat transfer from the surface of the body. Physiological mechanisms of heat transfer.
118. The main functions of the blood.
119. The composition of human blood.
120. Physiological constants of blood and the mechanisms of their maintenance.
121. Blood plasma. Electrolyte composition. Osmotic and oncotic blood pressure.
122. Erythrocytes: structure and function.
123. The concept of erythron.
124. Nervous and humoral regulation of erythropoiesis.

125. White blood cells, their types, number, function.
126. The concept of leukocytosis and leukopenia.
127. Leukocyte formula.
128. Regulation of leukopoiesis.
129. Hemoglobin and its compounds. Platelets, structure, quantity.
130. ESR mechanism.
131. Definition of a color indicator.
132. The process of blood coagulation and its significance. Theory of A.A.Schmidt.
133. Modern ideas about the main factors involved in blood coagulation.
134. Blood coagulation phases.
135. The concept of retraction and fibrinolysis.
136. Blood coagulation and anticoagulation systems.
137. Factors that accelerate and slow down blood coagulation.
138. The doctrine of blood groups.

Head of the Department
of Physiology and Pathophysiology, professor



T.P.Gening