LIST OF EXAM QUESTIONS
for students of the Institute of Dentistry

I GENERAL NOSOLOGY

1. The importance of pathophysiology for the formation of clinical thinking of a doctor.
2. Definition of the concepts of "health" and "disease". Clinical and biological death. Principles of resuscitation.
3. Definition of the concepts "etiology", "pathogenesis". The main link and the vicious circle circles in the pathogenesis of diseases (examples). Pathological process, pathological condition.

II. TYPICAL PATHOLOGICAL PROCESSES

Cell injury.

4. Cell injury. Main types of damage. Morphological and functional manifestations of cell injury.
5. Apoptosis . Necrosis. The main differences between apoptosis and necrosis. What is partial necrosis, in which cells of the tooth does it occur and why?
6. The main mechanisms of damage: enamel, dentin, pulp, epithelial cells of the oral mucosa.
7. Ischemic cell damage. Mechanisms of energy imbalance provision of the cell and its consequences.
8. Mechanisms of cell membrane damage. The role of lipids peroxidation and activation of membrane-bound phospholipases in cell damage. The role of antioxidants in protecting cells from reactive oxygen species.

Local circulatory disorders.

9. Arterial hyperemia. Types. Manifestations (changes in microcirculation and metabolism). Mechanisms of development. Manifestations of arterial hyperemia in maxillofacial region.
10. Venous hyperemia. Causes. Manifestations (changes in microcirculation and metabolism). Mechanisms of development. Stasis. Types. Causes. Mechanism development. Consequences.
11. Ischemia. Causes. Manifestations. Mechanisms of development. Consequences of ischemia in maxillofacial region.
12. Embolism. Types. Hemodynamic disorders in case of embolism in the pulmonary/ small and large circle of blood circulation. Cavernous sinus embolism.

Inflammation.

13. Inflammation. Definition of the concept. Causes. Main signs of inflammation. The mechanism of their development. The importance of inflammation for the body.
14.Classification of inflammation. Distinctions between exudative-destructive (acute) inflammation from productive (chronic granulomatous). Productive inflammation from productive in exacerbation.
15.Pathogenesis of pulpitis and acute periodontitis. Pathogenesis of granuloma formation in periodontitis.
16. List the mechanisms of bone resorption in apical periodontitis . Pathogenesis and classification of periostitis. Routes of spread infection into the periosteum. Pathogenesis of odontogenic osteomyelitis.
17. Inflammatory mediators of cellular origin. Their types. Sources of origin. Main effects.
18. Changes in microcirculation in the site of acute inflammation. Mechanism of development.
19. Exudation during inflammation. Mechanism of development. Types and properties of exudates. The difference between serous exudate and transudate. The role of mediators in development exudation during inflammation.
20. Emigration of leukocytes during inflammation. Stages, mechanism of development. Role mediators and adhesion molecules in the emigration of leukocytes during inflammation.
21. Activation of the kallikrein-kinin system and the complement system in acute inflammation . Their role in the development of inflammation.
22. Phagocytosis. Stages and mechanisms of development of phagocytosis. The role of chemoattractants , opsonins and bactericidal systems of phagocytes in the mechanisms of phagocytosis.

Acute phase response. Fever.

23. Acute phase response. Causes. Changes in the functions of organs and systems. Biological significance.
24. The role of acute phase response mediators in the development of general and local reactions organism for damage.
25. Mechanism of acute phase response development in case of injury. Major acute phase response proteins and their biological role.
26. Definition of the concept "fever". Causes, classification of febrile reactions. The importance of fever for the body. The difference between fever and hyperthermia.
27. Etiology and pathogenesis of fever. Stages of fever. Principles of correction of febrile reactions.

The role of reactivity in pathology, immunopathology.

28. Definition of the concepts of “reactivity” and “resistance” of the organism. Types and forms of reactivity, the importance of the body's reactivity in pathology. Bring examples in dentistry.
29. Pathology of the human immune system. Forms, causes. Development mechanism of autoimmune diseases.
30. Primary immunodeficiency states. Main types. Causes, development mechanisms. Manifestations in the maxillofacial region.
31. Secondary immunodeficiency states. Causes, mechanisms of development. Pathogenesis and main clinical manifestations of HIV infection (AIDS). Manifestations in the maxillofacial region
32. Definition of "allergy". Factors predisposing to allergy. The main groups of allergens. Allergy to components used in dentistry.
33. Pathogenetic hypersensitivity classification according to Gell and Coombs. Features of the development of immune stages of hypersensitivity I, II, III and IV types. Examples.
34. Hypersensitivity type I (allergy). Stages, mechanisms of development. Examples of diseases. The mechanism of development of allergic reactions in anesthesia . Pathogenesis of anaphylactic shock and principles its therapy.
35. Definition of the term " atopy ". Allergic antibodies involved in atopic reactions . Their (AB) properties and detection methods. Allergy treatment methods. Principles of specific immunotherapy (ASIT).
36. Hypersensitivity II (cytotoxic) type. Stages, mechanisms development. - Dental anifestations. Examples of diseases.
37. Hypersensitivity type III (immune complex). Stages, mechanism development. Examples of diseases. Dental manifestations. Serum disease. Forms, pathogenesis, principles of therapy.
38. Hypersensitivity type IV (cellular). Stages, mechanisms of development. Main mediators. Dental manifestations of Type IV hypersensitivity. Principles of therapy.

Metabolic disorder.

39. Edema. Mechanisms of development of various types of edema.
40. Dehydration. Main types. Disorders that occur whith various forms of dehydration. Manifestations in the maxillofacial region.
41. Causes and consequences of swelling in the oral cavity.
42. The main types of disturbance of the acid-base balance of the internal environment of the body. The body's defense system against pH shifts. The main ABS components. Possible causes and consequences of ABS disorders in the oral cavity.
43. Metabolic and respiratory acidosis. Causes, characteristics. Mechanisms of compensation, changes in the function of organs and systems.
44. Metabolic and respiratory alkalosis. Causes, characteristics. Compensation mechanisms, changes in the function of organs and systems.
45. - Stefan's curve. Practical significance and analysis. The influence of microflora on pH of oral fluid. The pH values at which oral fluid promotes demineralization and remineralization of tooth enamel.

Hypoxia.

46. Definition of the concept of hypoxia. Types of hypoxia. Metabolic and functional disorders in the body during hypoxia. Mechanisms emergency and long-term adaptation to hypoxia.
47. Hypoxia of exogenous, respiratory and tissue types. Etiology. Pathogenesis. Blood gas composition and pH indicators.
48. Hypoxia of hemic and circulatory types. Etiology and pathogenesis. Arterial and venous blood gas composition indicators.

Disruption of tissue growth.

49. Tumor. Definition of the concept. Types. Characteristics of metabolism in tumor tissue and in the body - the tumor carrier. Tumor progression.
50. Modern concepts of the etiology and pathogenesis of tumor growth.
51. The role of the body's reactivity in the occurrence and development of tumors.

III. PATHOPHYSIOLOGY OF ORGANS AND PHYSIOLOGICAL SYSTEMS.

Pathophysiology of the circulatory system.

52. Cardiac arrhythmias. Definition of the concept. Classification. Extrasystole.
53. Sinus tachycardia and bradycardia. Atrial fibrillation. Principles of defibrillation .
54. Myocardial forms of heart failure. Etiology, main manifestations, pathogenetic mechanisms.
55. Coronary insufficiency. Types. Causes. Development mechanism. Disorders myocardial functions in coronary insufficiency. Clinical manifestations.
56. Acute myocardial infarction. Causes. Development mechanism. Clinical signs. Hemodynamic disturbances. Life-threatening consequences for the patient whith acute myocardial infarction.
57. Overload forms of heart failure. Types, causes, pathogenesis.
58. Congestive chronic heart failure. Types. Manifestations. Causes. Hemodynamic consequences.
59. Pathogenesis of edema in congestive chronic heart failure. Principles of pathogenetic therapy
60. Arterial hypertension. Definition. Risk factors. Consequences for organism. Manifestations in the oral cavity.
61. Mechanisms of development of cyanosis, dyspnea, tachycardia in case of general circulatory failure.

Pathophysiology of hemostasis

62. Causes and consequences of vascular- platelet hemostasis disorders. Examples. Importance in dentistry.
63. Causes and consequences of coagulation hemostasis disorders. Examples. Importance in dentistry.
64. Causes and pathogenesis of thrombohemorrhagic syndrome, stages, manifestations in the oral cavity.
65. Thrombosis of vessels of the maxillofacial region. Pathogenesis of thrombosis of the cavernous sinus, thrombophlebitis of the facial veins. Manifestations, consequences.

Pathophysiology of the blood system.

66. Erythrocytosis. Definition. Classification. Pathogenesis.
67.Anemia. Definition. Principles of classification. Changes in organ function and systems for anemia.
68. Causes and stages of development of acute posthemorrhagic anemia. Compensatory and adaptive reactions in acute posthemorrhagic anemia. Changes in the blood picture at different stages.
69. Hemolytic anemia. Types. Causes. Development mechanisms. Peripheral blood picture.
70. Iron deficiency anemia. Causes. Main manifestations, their mechanism development. Peripheral blood picture. Sideropenic syndrome. Manifestations of iron deficiency in the oral cavity.
71. Pathogenesis of sideroblastic anemia. Hematological indices. Typical dental manifestations of sideroblastic anemia. Distinction from iron deficiency anemia.
72.B12-deficiency anemia. Causes. Main manifestations, mechanism of their development.

Peripheral blood picture. Typical dental manifestations of megaloblastic anemia.
73.Hypo- and aplastic anemia. Types. Main manifestations mechanism of their development. Peripheral blood picture. Manifestations of hypo- and aplastic anemia in the oral cavity.
74. Leukopenia. Agranulocytosis . Types. Causes. Development mechanisms. Main manifestations, consequences for the body. Manifestations of agranulocytosis in the oral cavity.
75. Leukocytosis and leukemoid reactions. Types. Causes. Mechanisms of development. Significance for the body.
76. Leukemia. Principles of classification. Etiology. Pathogenesis. Main manifestations. Peripheral blood picture in acute leukemia and principles of differential diagnostics. Manifestations of leukemia in the oral cavity.
77. Chronic lympho- and myeloproliferative diseases . Main dental manifestations. Peripheral blood picture in chronic lymphocytic leukemia , chronic myeloleukemia and Vaquez disease.

Pathophysiology of the endocrine system.

78. Gigantism, acromegaly. Causes, mechanisms of disorders developing in the body. Dental manifestations.
79. Hypothyroidism. Main forms. Causes. Character and mechanisms of disorders developing in the body. Dental manifestations.
80. Hyperfunction of the thyroid gland. Main forms. Causes. Character and mechanisms of disorders developing in the body. Dental manifestations.
81. Hyper- and hypofunction of the parathyroid glands. Causes. Character and mechanisms of disorders developing in the body. Dental manifestations.
82. Chronic adrenal insufficiency. Causes. Pathogenesis of disorders developing in the body. Importance in dentistry.
83. Iatrogenic cushing is syndrome . Mechanisms of development, clinical manifestations.
84. Stress (general adaptation syndrome). Concept. Stages. Role of hormones. Significance for the body.
85. Diabetes mellitus type I (DM 1). Etiology, pathogenesis, clinical manifestations. Manifestations of DM 1 in the oral cavity.
86. Diabetes mellitus type II (DM 2). Etiology, pathogenesis, clinical manifestations. Manifestations of DM 2 in the oral cavity.
87. Pathogenesis of hypoglycemic , ketoacidotic and hyperosmolar coma patients with diabetes mellitus.

Pathophysiology of the respiratory system.

88. Etiology and pathogenesis of respiratory system disorders. Definition of the concept "respiratory failure". Main manifestations, forms, respiratory failure indicators.
89.Pathological forms of breathing. Causes and mechanisms of development stenotic breathing, periodic breathing, Kussmaul breathing , frequent shallow breathing.
90. Obstructive pulmonary pathology. Etiology, pathogenesis. Changes in ventilation parameters.
91. Restrictive lung pathology. Etiology, pathogenesis. Changes in ventilation parameters.
92.Bronchial asthma. Types. Causes. Mechanisms of bronchial obstruction. Changes in ventilation parameters. Principles of therapy.
93. Adenoid type of face. Causes, development mechanisms, consequences.

Pathophysiology of the digestive system.

94. Disorders of the secretory and motor function of the stomach. Main forms, consequences. Gastritis. Pathogenesis.
95. Disorders of cavity digestion. Causes, mechanisms and consequences disturbances in the flow of bile and pancreatic secretions into the intestines.
96. Pathogenesis of malabsorption . Deficiency of vitamins A , D, E, K, C. Manifestations in oral cavity.

97. Breakdown of poly- and disaccharides in the oral cavity, the importance of salivary enzymes. Dysphagia. Causes, mechanisms of development.
98.Pathology of chewing. Dental causes of chewing disorders. Consequences: hypergeusia , hypogeusia , parageusia.
99. Gastric ulcer and duodenum ulcer. Modern concept of pathogenesis of peptic ulcer disease. Principles of pathogenetic therapy.

Pathophysiology of the liver.

100. Suprahepatic (hemolytic) jaundice. Causes, mechanisms of development. Main symptoms. Disruption of body functions. Manifestations in the oral cavity.
101. Subhepatic (mechanical) jaundice. Causes, mechanisms of development. Main symptoms. Disorders of body functions. Manifestations in the oral cavity.
102. Hepatic (parenchymatous) jaundice. Causes, mechanisms of development. Main symptoms. Disruption of body functions. Manifestations in the oral cavity.

Pathophysiology of the kidneys.

103. Renal manifestations of nephropathy - changes in diuresis, urine density, clearance, development of "urinary syndrome" (pathological components of urine). Mechanism of development.
104. Nephrotic syndrome. Etiology and pathogenesis. Main manifestations.
105. Acute glomerulonephritis . Causes. Pathogenesis. Main manifestations.
106. Acute renal failure. Causes, pathogenesis. Stages, main manifestations, mechanisms of their development.
107. Chronic kidney disease (CKD). Causes, pathogenesis, stages. Uremia.
Uremic toxins. Main manifestations of uremia and mechanisms of their development. Importance in dentistry.

Pathophysiology of the nervous system.

108. Pain. Types. Nociceptive stimuli and mechanisms of their perception. Painful receptors. Mediators of pain sensitivity. Antinociceptive system and ways of its activation.
109. Pathogenesis of trigeminal neuralgia of the central and peripheral nerve genesis. Differences from facial nerve neuralgia. Nature of pain.
110. Causalgic pain in the maxillofacial region. Psychogenic pain. Phantom pains.
111. Pain relief. Methods of pain relief in dentistry. Mechanism of action of non-narcotic and narcotic analgesics.