**The list of questions for the exam in the discipline "Anatomy - Anatomy Head and Neck"**

**APPROVED**

Vice-Rector for Academic,

Educational Work and Youth Policy

Doctor of Medical Science,

I.A. Soloveva \_\_\_\_\_\_\_\_\_\_

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**The list of questions for the exam in the discipline "Anatomy"**

**for the specialty 31.05.03 Dentistry, (full-time training)**

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| No | Question wording |
| 1 | 2 |
| **General theoretical issues** |
| 1.
 | The subject and content of anatomy. Its place is among the biological disciplines. The significance for the study of clinical disciplines and for medical practice. Basic methodological principles of anatomy. |
| 1.
 | Anatomy and medicine of Ancient Greece, Rome (Aristotle, Galen) and the Renaissance (Leonardo da Vinci, Andreas Vesalius). |
| 1.
 | Russian anatomists of the XVIII-XIX centuries (A. P. Protasov, M. I. Shein, P. A. Zagorski, I. V. Buyalsky, D. N. Zernov, N. and Pirogov). |
| 1.
 | The anatomy of the Soviet period. V. P. Vorob'ev, V. N. Tonkov, D. A. Zhdanov and their contribution to the development of anatomy. |
| 1.
 | The concept of organs and organ systems. Individual variability of organs. The concept of variants of the norm in the structure of organs and the body as a whole, the symmetry and asymmetry. |
| **Anatomy of the oral cavity, teeth, the dental system as a whole** |
| 1.
 | The first (mandibular) and second (hyoid) pharyngeal arches, their derivatives. Anomalies of the development of pharyngeal arches and pharyngeal pouches. |
| 1.
 | The oral cavity: borders, communications. Lips, vestibule of the oral cavity, cheeks, gingiva. Their structure, blood supply, innervation and lymph outflow. |
| 1.
 | The oral cavity: bone walls, soft tissues. Oral cavity communications. Age-related and individual variability and structural features of the oral mucosa. |
| 1.
 | The tongue: its development, structure, functions, its blood supply, innervation and lymph outflow. |
| 1. 10.
 | Salivary glands. The classification, topography, structure, excretory ducts. The blood supply and innervation of the salivary glands, lymph outflow pathways. The space of the parotid salivary gland: contents, communications. |
| 1. 11.
 | Sublingual and submandibular salivary glands: their position, structure, excretory ducts, blood supply, innervation and lymph outflow. |
| 1. 12.
 | The parotid salivary gland: its position, structure, excretory ducts, blood supply, innervation and lymph outflow. |
| 1. 13.
 | The mucous membrane of the oral cavity. Its structure, blood supply, innervation. The gingiva, its alveolar and marginal parts. The structure of gingival furrows. Interdental papillae, the gingival pocket. Ligaments of the gingiva. Age features. |
| 1. 14.
 | Hard and soft palates. Muscles of the soft palate. The blood supply, palate innervation and lymph outflow pathways. |
| 1. 15.
 | The vestibulum of the oral cavity. The boundaries of the oral cavity vestibulum. Cheeks, lips. The buccal fat pad, its processes and topography. Sources of blood supply and innervation of the cheek.   |
| 1. 16.
 | Interfascial compartments of the lateral area of the face. The pterygoid fossa, its walls, contents and communications. |
| 1. 17.
 | Interfascial compartments of the head. osteofascial and intermuscular spaces of the calvaria and temporal region, their contents and communications. |
| 1. 18.
 | General anatomy of teeth. Parts of the tooth. The surface of the crown. The enamel and the dentin. Formulas of teeth. Signs of teeth. |
| 1. 19.
 | Permanent teeth. Molars of the lower jaw. Features of the structure of crowns, roots. Their blood supply, innervation and lymphatic outflow. |
| 1. 20.
 | Permanent teeth. Molars of the upper jaw. Features of the structure of crowns, roots. Their blood supply, innervation and lymphatic outflow. |
| 1. 21.
 | Premolars of the upper and lower jaw, structural features. Their blood supply, dental innervation and lymph outflow pathways. |
| 1. 22.
 | Deciduous teeth. Features of the structure. The timing of eruption. The blood supply and innervation of teeth. |
| 1. 23.
 | The difference in the number, position and shape of the teeth. A diastema. A crowding. A mesiodens. Different degrees of differentiation of the root system of teeth. |
| 1. 24.
 | The floor of the oral cavity: its structure, blood supply, innervation and lymph outflow pathways. Interfascial compartments of the oral cavity floor. |
| 1. 25.
 | The development of the dentoalveolar system in phylogeny and ontogenesis. Variants and anomalies of tooth development. |
| 1. 26.
 | The dental system as a whole. Dental, alveolar and basal arches. The concept of occlusion. Types of occlusions. |
| 1. 27.
 | Fascial compartments of the oral cavity floor and pharynx. Their topography and communications. The blood supply and innervation of the pharynx, regional lymph nodes. |
| 1. 28.
 | General characteristics of permanent teeth, the structure of the teeth of the right and left halves of the dental arches. Formulas of permanent teeth and the timing of their eruption. The blood supply and innervation of teeth. |
| 1. 29.
 | Permanent incisors and canines. Features of the structure of the incisors and canines of the upper and lower jaws, sources of their blood supply and innervation and ways of lymph outflow. |
| 1. 30.
 | Premolars. Features of the structure of the premolars of the upper and lower jaws. The sources of their blood supply and innervation and the ways of lymph outflow. |
| 1. 31.
 | Physiological and pathological occlusion, their characteristics. Variants and anomalies of tooth development. Dental X-ray anatomy. |
| 1. 32.
 | General anatomy of teeth. Parts of the tooth, the surfaces of the crowns. The concept of periodontal, periodontal, dental organ. Relationships of the teeth roots to the nasal cavity, the maxillary sinus and the mandibular canal |
| 1. 33.
 | The concept of the dentoalveolar segment. Dentoalveolar segments of the upper jaw. The structures of the dentoalveolar segments of the upper jaw and their characteristics. |
| 1. 34.
 | The concept of the dentoalveolar segment. Dentoalveolar segments of the lower jaw. Structures of the dentoalveolar segments of the lower jaw and their characteristics. |
| 1. 35.
 | The dentalalveolar system as a whole. Types of occlusions. Characteristics of orthognathia, progenia, biprognathia and the direct occlusion. |
| 1. 36.
 | Molars of the upper and lower jaws. Features of the structure of the molars of antimers and antagonists. The sources of their blood supply, innervation and lymph outflow. |
| 1. 37.
 | The blood supply and innervation of teeth. The openings and canels of the skull through which the vessels and nerves that are related to the blood supply and innervation of the teeth of the upper and lower jaws pass. |
| 1. 38.
 | Incisors and canines. Features of the structure of incisors and canines of antimers and antagonists. Sources of their blood supply, innervation and lymph outflow routes. |
| 1. 39.
 | Premolars. Features of the structure of the premolars of the upper and lower jaws. The sources of their blood supply, innervation and lymphatic outflow. |
| 1. 40.
 | Baby teeth. Features of the structure of milk teeth. The formula of baby teeth, the timing of their eruption, sources of blood supply and innervation. |
| 1. 41.
 | Age and individual features of the structure of the dentoalveolar system. The concept of the tooth abrasion. The degree of the tooth abrasion.  |
| **Anatomy of the skull** |
| 1. 42.
 | The development of the skull in philo - and ontogenesis. Individual, age and sex characteristics of the skull. |
| 1. 43.
 | Individual features of the structure of the skull. Craniometric indexes. Types of the cerebral skull. Types of the facial skull. |
| 1. 44.
 | Variants and anomalies of the development of the skull bones. Criticism of the" theories " of racism in the doctrine of the variability of the skull. Individual, age and sex characteristics of the skull. |
| 1. 45.
 | The bones of the cerebral skull: frontal, parietal, occipital and ethmoid. Foramens and their purpose. |
| 1. 46.
 | The temporal bone, its parts, foramens, canels and their purpose. |
| 1. 47.
 | The sphenoid bone, its parts, foramens and their purpose. |
| 1. 48.
 | Bones of the facial skull. The orbit, the structure of the walls, foramens and their purpose. |
| 1. 49.
 | The inner surface of the base of the skull; foramens and their purpose. |
| 1. 50.
 | Age and individual features of the structure of the lower jaw. |
| 1. 51.
 | The upper jaw: the structure, foramens and their purpose. The maxillary sinus: its walls, functions, relation to the roots of the teeth of the upper jaw. |
| 1. 52.
 | The zygomatic and palatine bones and their structure. Buttresses of the bones of the facial skull. The X-ray anatomy of the facial skull. |
| 1. 53.
 | Buttresses of the upper and lower jaw: their location and functional significance. |
| 1. 54.
 | Topographic formations of the facial skull. The orbit, its messages, the contents of the orbit and the purpose of foramens, fissures and canals. |
| 1. 55.
 | The upper wall of the oral cavity. The structure of the hard palate. The muscles of the soft palate, their blood supply, innervation and lymph outflow pathways. |
| 1. 56.
 | The nasal cavity, its walls, communications, the purpose of foramens and canals. |
| **Anatomy of the musculoskeletal system** |
| 1. 57.
 | A bone as an organ: its development, structure and growth. The classification of bones. The structure of long tubular bones. |
| 1. 58.
 | Vertebrae: their structure in various parts of the spine; connections between the vertebrae. The vertebral column as a whole, physiological curves. |
| 1. 59.
 | Ribs and sternum: their development and structure. The connection of the ribs with the vertebrae and sternum. The chest as a whole. The movements of the ribs, the muscles that set them in motion, their blood supply and innervation. |
| 1. 60.
 | Anatomical and biomechanical classification of bone joints and their functional features. |
| 1. 61.
 | The bones of the leg and foot and their connections. The muscles acting on the ankle joint, their blood supply and innervation. |
| 1. 62.
 | Connections of the skull, connections of the skull with the vertebral column. Types of sutures. Atlanto-occipital joint, lateral and median atlanto-axial joints, their structure, blood supply and innervation. |
| 1. 63.
 | The temporomandibular joint: the structure, shape, muscles acting on this joint, their blood supply, innervation and lymph flow. |
| 1. 64.
 | Connections of the bones of the skull. Types of sutures. Features of the structure of the temporomandibular joint, sources of its blood supply, innervation and the lymphatic outflow. |
| 1. 65.
 | Joints of the pelvic bone and thigh. The hip joint. The muscles that drive it, blood supply and innervation. The pelvis as a whole. Gender differences, the sizes of the female pelvis. |
| 1. 66.
 | Joints of the upper limb: a shoulder, an elbow (their structure and movements). The muscles acting on these joints, the blood supply, innervation and the lymph flow. |
| 1. 67.
 | The knee joint: its structure, shape and movement; muscles acting on the knee joint. |
| 1. 68.
 | General anatomy of muscles, the structure of a muscle as an organ, classification of skeletal muscles (by shape, structure, location, etc.). Anatomical and physiological diameter of muscles. Auxiliary apparatus of the muscles. |
| 1. 69.
 | Muscles and fascia of the thigh, leg, structure, function. The blood supply, innervation and the lymph outflow. |
| 1. 70.
 | Fascia and interfascial compartments of the neck. Neck triangles. |
| 1. 71.
 | Muscles and fascia of the neck. Points of attachment of muscles, functions, their blood supply, innervation and the lymphatic outflow. Interfascial compartments of the neck. |
| 1. 72.
 | The muscles and fasciae of the chest, their topography, structure, functions, blood supply, innervation and lymph flow. |
| 1. 73.
 | The diaphragm, its parts, topography, function, blood supply and innervation. |
| 1. 74.
 | The anatomy of the abdominal muscles, their topography, function, blood supply and innervation and lymph outflow. The rectus sheath. The white line. The inguinal canal. |
| 1. 75.
 | Muscles and fascia of the upper limb: their structure, topography, functions, blood supply and innervation. Joints of the hand: their structure, shape and movements. The muscles acting on the joints of the hand, their blood supply and innervation. |
| 1. 76.
 | Muscles and fascia of the shoulder girdle and shoulder: their structure, topography, functions, blood supply and innervation. |
| 1. 77.
 | Bone-fascial and intermuscular spaces of the head: their topography, structure and communications. |
| 1. 78.
 | Muscles of facial expression. Their development, structure, topography, function, blood supply, innervation and lymph outflow. |
| 1. 79.
 | Masticatory muscles, their development, functions, blood supply, innervation and lymphatic outflow. |
| 1. 80.
 | Development of the muscles and fascia of the neck. The superficial muscles of the neck. Suprahyoid and infrahyoid muscles of the neck. Deep neck muscles. The blood supply and innervation of the neck muscles. |
| 1. 81.
 | The muscles involved in the movement of the lower jaw. Their topography, blood supply, innervation and lymph outflow. |
| **Splanchnology** |
| 1. 82.
 | Development of the digestive system. Formation of the oral cavity, anomalies of the development of the lips, hard and soft palate. |
| 1. 83.
 | The tongue its: development, structure, functions, its blood supply, innervation and lymph outflow. |
| 1. 84.
 | Pharynx, its structure, blood supply, innervation and lymph outflow. The lymphoid ring of the pharynx. |
| 1. 85.
 | The esophagus and stomach: their structure, topography, blood supply, innervation and lymphatic outflow. |
| 1. 86.
 | The small intestine: its departments, their topography, relation to the peritoneum, the structure of the walls, blood supply, innervation and regional lymph nodes. |
| 1. 87.
 | The large intestine: its departments, their topography, relation to the peritoneum, the structure of the wall, blood supply, innervation and lymph outflow. |
| 1. 88.
 | The rectum: its topography, relation to the peritoneum, wall structure, blood supply and innervation and regional lymph nodes. |
| 1. 89.
 | The liver, the gallbladder and the pancreas. Their development, structure and topography, excretory ducts. Their blood supply and innervation, and regional lymph nodes. |
| 1. 90.
 | The topography of the peritoneum in the supracolic and infracolic compartments of the abdominal cavity. Omentums, bursae, canals, fossae, sinuses. The retroperitoneal space. |
| 1. 91.
 | The external nose. The nasal cavity. Paranasal sinuses. The blood supply and innervation of the nasal cavity and lymph outflow pathways. |
| 1. 92.
 | Paranasal sinuses, their significance, development in ontogenesis, variants and anomalies. |
| 1. 93.
 | The larynx: its cartilage, joints, muscles of the larynx. The elastic cone of the larynx. The laryngeal cavity. The blood supply, innervation and the lymph outflow. |
| 1. 94.
 | The trachea, the main bronchi. Lungs: its development, topography, the concept of the segmental structure of the lungs. The blood supply and innervation of the lung. |
| 1. 95.
 | Pleura: its divisions, borders, pleural cavity, sinuses. |
| 1. 96.
 | Mediastinum: departments, organs of the mediastinum, their topography. Specify the connection of the mediastinum with the fascial space of the neck. The practical significance. |
| 1. 97.
 | Kidneys: their development, structure, topography, blood supply, innervation, regional lymph nodes. The fixing apparatus of the kidneys. |
| 1. 98.
 | Organs of the urinary system: the ureter, the urinary bladder and the urethra. Its structure and gender differences. The blood supply, innervation and lymph outflow of the organs of the urinary system. |
| 1. 99.
 | Internal and external male genitalia, their structure. Ways of excretion of seminal fluid. Testicular layers and their derivatives. The blood supply, innervation of the male genital organs and the lymph outflow pathways. |
| 1.
 | Female genitalia: their structure, topography, blood supply, innervation and lymph outflow. The perineum: boundaries, muscles and sexual differences. |
| **The central nervous system** |
| 1.
 | The nervous system and its significance in the body. Classification of the nervous system and the relationship of its departments. The concept of a neuron (neurocyte). Classification of neurons. Nerve fibers, bundles, roots and nodes. Simple and complex reflex arcs. |
| 1.
 | The development of the brain in philo - and ontogenesis. Brain vesicles and their derivatives. Criticism of the" theory " of racism in the study of the brain. |
| 1.
 | The spinal cord: its development, segmentation, topography and internal structure. The localization of pathways in the white matter. The blood supply to the spinal cord. |
| 1.
 | The functional anatomy of the midbrain: its parts, nuclear and fiber composition. The connection with other parts of the central nervous system. The cerebral aqueduct. |
| 1.
 | The medulla oblongata. The pons. The structure, nuclear and fiber composition. Rhomboid fossa, its relief. IV ventricle of the brain. |
| 1.
 | The rhombencephalon: the pons and cerebellum. The structure and cores. Cerebellar peduncles and their fiber composition. |
| 1.
 | The diencephalon: departments, internal structure and the third ventricle. |
| 1.
 | Gray and white matter on sections of the brain hemispheres. Basal nuclei. The location and functional significance of pathways in the inner capsule. |
| 1.
 | The olfactory brain, its parts, central and peripheral parts. The concept of the limbic system. |
| 1.
 | The cerebrum. Lateral ventricles, parts, walls, ways of outflow of cerebral fluid. The structure of the cerebral cortex of the cerebral hemispheres. The localization of functions in the cortex. |
| 1.
 | Efferent pathways of the brain and spinal cord. The pyramid pathway. Extrapyramidal pathways. |
| 1.
 | Afferent pathways of the brain and spinal cord (pathways of pain and temperature sensitivity, proprioceptive sensitivity of the cortical and cerebellar directions and tactile sensitivity). |
| **The** **peripheral nervous system, sensory organs,** **the autonomic nervous system** |
| 1.
 | The development and principles of the structure of cranial nerves. II, III, IV and VI pairs of cranial nerves. The pathway of the visual analyzer. |
| 1.
 | VIII pair of cranial nerves and the topography of its nuclei. Pathways of the organs of hearing and balance. |
| 1.
 | The cervical plexus, its topography, branches and the area of innervation. |
| 1.
 | The trigeminal nerve (V pair of cranial nerves). The topography of the nuclei, exit to the base of the brain, branches. Innervation of the dentoalveolar system. |
| 1.
 | IX and X pairs of cranial nerves. The topography of the nuclei. Branches and areas of innervation. |
| 1.
 | The facial nerve, the location of its nuclei, the topography of the branches. Areas of innervation. |
| 1.
 | The glossopharyngeal nerve. The location of its nuclei, the topography of the branches and the areas of innervation. |
| 1.
 | III, IV, VI pairs of cranial nerves. The location of the nuclei, the areas of innervation. The diagram of the pupillary reflex. |
| 1.
 | XI and XII pairs of cranial nerves. The topography of the nuclei. Branches and areas of innervation. |
| 1.
 | The trigeminal nerve (V pair of cranial nerves). The topography of the nuclei, exit to the base of the brain, branches. Innervation of the maxillary system. |
| 1.
 | The accessory and hypoglossal nerves. The openings through which the XI and XII pairs of cranial nerves pass, the location of their nuclei and the topography and areas of innervation. |
| 1.
 | Characteristics of the sensory organs. I. P. Pavlov's teaching about analyzers and signal systems. The organ of vision: the general plan of the structure, the eyeball and its auxiliary apparatus. |
| 1.
 | The organ of hearing and balance: the general plan of the structure and functional features. |
| 1.
 | Intercostal nerves. Lumbar and sacral plexuses: their structure, topography, nerves and innervation areas. |
| 1.
 | The autonomic nervous system and its classification. The localization of the centers of the sympathetic and parasympathetic parts of the nervous system. Vegetative ganglia, their classification and topography. The sympathetic trunk. |
| **Angiology. The immune system** |
| 1.
 | The heart: departments, the structure of the walls, topography. The conducting system of the heart. Blood supply and innervation of the heart. |
| 1.
 | The maxillary artery. Its topography, branches and areas of the blood supply. |
| 1.
 | Anterior branches of the external carotid artery: superior thyroid, lingual and facial ones. Their topography, branches, anastomoses and areas of blood supply. |
| 1.
 | Vessels of the greater circle of blood circulation. The aorta, its departments. Branches of the aortic arch and its thoracic part (parietal, visceral). |
| 1.
 | Arteries of the upper limb: its branches, areas supplied with blood by them. The blood supply, innervation and lymph outflow of the elbow joint. |
| 1.
 | The subclavian artery, its topography, branches, areas they supply the blood to. The topography of the vertebral artery. |
| 1.
 | The internal carotid artery, its topography and branches. The blood supply to the brain. |
| 1.
 | The facial artery. The topography of its branch, the area of the blood supply and anastomoses. |
| 1.
 | Pelvic and lower limb arteries: the areas supplied with blood by them. Blood supply to the pelvic organs. |
| 1.
 | Parietal and visceral (paired and unpaired) branches of the abdominal part of the aorta. Features of their branching and anastomosis. |
| 1.
 | Anastomoses of arteries and anastomoses of veins. Circuitous blood flow pathways (examples). Venous plexuses. Intersystem and intra-system anastomoses of veins (cava-caval, cava-cava-portal, porto-caval). |
| 1.
 | Veins of the head and neck. The internal jugular vein, its topography and tributaries. Features of venous outflow from the brain. |
| 1.
 | Veins of the head. Features of venous outflow from the brain. Sinuses of the dura mater, emissary and diploic veins. |
| 1.
 | Portal vein. Its tributaries, their topography; branching of the portal vein in the liver. Anastomoses of the portal vein and its tributaries. |
| 1.
 | The inferior vena cava, the sources of its formation and topography. Tributaries of the inferior vena cava and their anastomoses. |
| 1.
 | External carotid artery and its topography. Indicate the topographic formation of the neck, in which the external carotid artery passes in both on the models and diagrams. Specify its branches and the areas they supply the blood to. |
| 1.
 | The venous and lymphatic outflow from the organs of the oral cavity. Ways of the outflow of the venous blood and the lymph from the upper, lower teeth, gingiva and the tongue. The location of regional lymph nodes. |
| 1.
 | The external carotid artery and its topography. Branches of the external carotid artery and the areas they supply the blood to. |
| 1.
 | The veins of the brain. Venous sinuses of the dura mater, emissary veins and diploic veins. |
| 1.
 | Veins of the head. Deep and superficial veins of the face and their anastomoses. |
| 1.
 | The lymph node as an organ (its structure and functions). The classification of lymph nodes. |
| 1.
 | Lymphatic vessels and regional lymph nodes of the head. Pathways of the lymph outflow from anatomical formations of the head. |
| 1.
 | Principles of the structure of the lymphatic system (capillaries, vessels, trunks, ducts), ways of the lymph outflow into the venous bed. The thoracic duct. The right lymphatic duct. |
| 1.
 | Lymphatic vessels and regional lymph nodes of the neck. Pathways of the lymph outflow from anatomical formations of the neck. |
| 1.
 | Central and peripheral organs of the immune system. Their topography, structure, functions and development in ontogenesis. |
| **Internal secretion glands** |
| 1.
 | Neurogenic endocrine glands: the pituitary gland, the adrenal medulla and the pineal gland (the epiphysis), their topography, structure and function. |
| 1.
 | Branchiogenic endocrine glands: thyroid and parathyroid glands. Their development, structure, topography and functions. The blood supply, innervation, and lymph outflow pathways. |

Approved at the meeting of the Department of Human Anatomy

Minutes No \_\_\_\_ dated  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   2021 г.

Head of the Department Human Anatomy

Doctor of Medical Science, Professor                                                           N. N. Medvedeva