

## DENTAL STUDENTS FINAL EXAM QUESTIONS - 2013

### I. Locomotory system and Skull

1. Bone as an organ. Structure of mature bone: osseous (bone) tissue, compact and spongy bone tissue. Types of bones. The skeleton – definition and function. Development and growth of the bones.
2. Joints between bones. Solid joints. Synovial joints ( diarthroses ) - the structure of the synovial joints: basic and additional elements. The classification of the synovial joints.
3. Vertebral column. Joints of the vertebral column. The vertebral column as a whole. Biomechanics. Joints between the vertebral column and the skull. Joints between the skull bones.
4. Skeleton of the thorax. Joints of the thorax. The thorax as a whole. Biomechanics.
5. Joints of the shoulder girdle. Shoulder joint.
6. Elbow joint. Joints between the bones of the forearm.
7. Joints of the wrist and the hand - general remarks.
8. The pelvic girdle as a whole. Joints of the pelvic girdle. Hip joint. Biomechanics.
9. Knee joint. Joints between the leg bones.
10. Ankle joint. Joints of the foot - general remarks.
11. Structure of skeletal muscle: auxiliary structures, classification of muscles, biomechanics.
12. Muscles of the shoulder girdle and the upper arm. Topography of the upper limb.
13. Muscles of the forearm and the hand.
14. Muscles around the hip joint and of the femoral region.
15. Muscles of the leg and foot. Topography of the lower limb.
16. Arteries of the upper limb.
17. Arteries of the lower limb.
18. The superficial veins of the upper and lower limbs.
19. Brachial plexus. Formation, position, branches.
20. Lumbar plexus. Formation, position, branches.
21. Sacral and coccygeal plexus. Formation, position, branches.
22. Skull (cranium) - facial cranium and neurocranium (cranial skull). Calvaria (calva, vault ).
23. Internal surface of the base of the skull - elements, passing through the openings and canals.
24. External surface of the base of the skull - elements, passing through the openings and canals.
25. Orbit. Walls, communications, and elements passing through them.
26. Skeleton of the nasal cavity. Walls, communications and elements passing through them.
27. Lateral aspect of the skull: temporal, infratemporal, and pterygopalatine fossae. Walls, boundaries, communications and elements passing through them.

### II. Splanchnology

28. The circulatory system. Definition. Constituting elements. Major (or systematic) circulation. Lesser (or pulmonary) circulation. Fetal circulation.

29. Heart - position, size, shape and external features. Surface projection on the chest wall. Cardiac atriums and chambers. The valves of the heart.
30. Cardiac wall (endocardium, myocardium, epicardium) - structure. Fibrous skeleton. Coordination of cardiac activities - the conducting system. Cardiac nerve supply. Blood supply of the heart. Pericardium.
31. Arteries - definition, position in the body, structure of arterial wall. Types of arteries.
32. The aorta – position and division in parts. The ascending aorta, the arch of the aorta, the thoracic aorta and the abdominal aorta – position, branches.
33. Veins - definition, position in the body, structure of venous wall. Types of veins. Venous valves.
34. The superior and inferior vena cava. Portal vein- position and main tributaries. Anastomoses between the two caval veins. Anastomoses between the portal and systematic circulation.
35. Microcirculatory blood system. Arterioles, capillaries- types of capillaries. Venules. Arteriovenous anastomoses.
36. The lymphoid system. Definition and constituting elements. The thoracic duct and the right lymphatic duct - formation and tributaries. Movements of the lymph. Lymph capillaries and lymph nodes - morphological characteristic.
37. The immune system- definition, classification and principle structure. The thymus and the spleen- position, morphological characteristic, blood supply and nerve supply.
38. Digestive system- the constituting organs. Principle structure.
39. Pharynx - shape, position, description. Parts of the pharynx. Structure. Blood and nerve supply.
40. Esophagus - position, parts, description. Structure of the esophag wall. Blood supply and nerves.
41. Stomach - position, description. Peritoneal relation of the stomach. Morphological characteristic. Blood supply and nerves.
42. Small intestine. Duodenum, jejunum and ileum - position, parts, description, peritoneal relation. Structure of the wall. Blood supply and nerves.
43. Large intestine – anatomical parts, position. Peritoneal relation. The colon and rectum. Morphological characteristic. Blood supply and nerves.
44. Pancreas - position, description, and peritoneal relation. Morphological characteristic. Blood supply and nerves.
45. Liver –size, position, description. Peritoneal connection of the liver. Morphological characteristic. Blood supply and nerves of the liver. Intra-and extrahepatic biliary ducts. The gall bladder.
46. Abdomen. Anterior abdominal wall. Inguinal canal.
47. Abdominal cavity. Peritoneum. Peritoneal cavity- upper region.
48. Peritoneal cavity- lower region.
49. Peritoneal cavity- pelvic region.
50. Retroperitoneal space- organs, vessels and nerves.
51. Respiratory system. The major organs of the respiratory system -principle structure. Larynx - position,description. Laryngeal cartilages. The cavity of the larynx.Vocal folds. Layngeal muscles. Blood supply and nerve supply.
52. Trachea and the bronchial tree - position, morphological characteristic. Blood supply and nerves.

53. Lungs - position, description. Lobes, segments, lobules. Morphological characteristic. Blood supply and nerves.
54. Thoracic cavity. Pleura. Pleural cavity.
55. Superior mediastinum.
56. Anterior and posterior mediastinum.
57. Thoracic diaphragm-position, description, blood and nerve supply.
58. The axillary fold. Shape, walls, and content.
59. Urinary system. Components. Kidneys- position, description. Morphological characteristic. Blood supply and nerves.
60. Excretory structures of the kidneys - minor and major calyces, pelvis. The ureter and urinary bladder. Position, description. Peritoneal relations. Structure of the wall. Blood and nerve supply.
61. Endocrine system- organs, classification. General characteristics. The pituitary gland, the thyroid and suprarenal glands – position, morphological characteristic. Blood and nerve supply.
62. Male reproductive system. Organs. Testis. Epididymis. Accessory ducts- ductus deferens, ejaculatory duct. Position, coats and morphological characteristic. Blood and nerve supply.
63. Male reproductive system. Seminal vesicles. Prostate gland. Penis. Male urethra. Position, morphological characteristic. Blood and nerve supply.
64. Female reproductive system. Organs. Ovary- position, morphological characteristic. Peritoneal relations. Blood and nerve supply.
65. Female reproductive system. Uterus and uterine tubes. Position and peritoneal relations. Morphological characteristic Ovarian-menstrual cycle. Blood and nerve supply.
66. Female reproductive system. Vagina and external genitalia. Blood and nerve supply.
67. Subperitoneal space of the pelvis. Perineum.
68. Muscles of the neck.
69. Cervical fascia.
70. External carotid artery - position and branches.
71. Submandibular triangle.
72. Sternocleidomastoid region and the carotid triangle.
73. Cervical plexus- formation and branches.
74. Cervical lateral region.
75. Infrahyoid region.
76. The root of the neck.

### **III. Nervous System, Sensory Organs and Regional Anatomy of the Head**

77. Spinal cord - position, shape, size, segments. Roots of spinal nerves and spinal ganglion. Grey matter - arrangement and structure.
78. Spinal cord. The white matter - ascending (sensory) and descending (motor) tracts. Intersegmental tracts.
79. Medulla oblongata - position, size, the external view (aspect), the internal structure.
80. Pons - position, parts, external view, internal structure. The fourth ventricle.
81. Midbrain - position, parts. External view and internal structure.
82. Cerebellum - position, shape, size, parts. Grey and white matter. Cerebellar peduncles.

83. Diencephalon - thalamus, epithalamus, metathalamus. Position, parts, external view, internal structure.
84. Diencephalon - hypothalamus, subthalamic area. Position, external view, internal structure. The third ventricle.
85. Cerebrum (forebrain) - position, shape, lobes. Exterior of the cerebral hemispheres - sulci and gyri. Important functional areas of the cerebral cortex.
86. Cerebral cortex - structure. Variations in the structure.
87. White matter of the hemispheres. Internal capsule.
88. Basal nuclei of the cerebrum. The lateral ventricle. Cerebrospinal fluid - formation and circulation, and drainage.
89. Olfactory apparatus (rhinencephalon). Olfactory pathway. Limbic system.
90. The meninges of the spinal cord and the brain. Blood supply of the brain.
91. Efferent pathways from the cerebral cortex (the pyramid system).
92. Efferent pathways from the cerebral cortex. The extrapyramid system.
93. Ascending pathways for general sensation and proprioception from the body.
94. Ascending pathways for general sensation and proprioception from the head.
95. Spinal nerves - number, groups, formation. Functional analysis of the spinal nerves.
96. Autonomic nervous system - definition, criteria for division into sympathetic and parasympathetic divisions. Reflex arch. Analysis of its neurons. Sympathetic division – sympathetic trunk.
97. Parasympathetic division of the autonomic nervous system. Cranial and sacral parasympathetic outflow - nuclei, ganglia, nerves.
98. External and middle ear.
99. Internal ear. The bony and membranous labyrinth - cochlear part. Organ of Corti. Pathway of hearing.
100. Internal ear. The bony and membranous labyrinth - vestibular part. Organ of equilibrium. Pathway of equilibrium.
101. Organ of vision - general remarks. Outer (fibrous) and middle (vascular) coat - parts, description.
102. Retina. Visual pathway.
103. Refracting media of the eye - cornea, lens, vitreous body, aqueous humour.
104. Facial artery – position, branches and anastomoses.
105. Maxillary artery - position and division in parts, branches.
106. Veins of head and neck.
107. Lymph nodes of head and neck.
108. Cranial nerves - number, names, groups. General principles of formation. Nuclei (motor, sensory, parasympathetic), ganglia.
109. Third, fourth, and sixth cranial nerves - nuclei, position, characteristics. Course of the nerve, branches, area of distribution.
110. Trigeminal nerve. Nuclei - position, characteristic. The ganglion of the nerve. The first branch of the nerve - course, branches, area of distribution.
111. Trigeminal nerve. Nuclei - position, characteristic. The ganglion of the nerve. The second branch of the nerve - course, branches, area of distribution.
112. Trigeminal nerve. Nuclei - position, characteristic. The ganglion of the nerve. The third branch of the nerve - course, branches, area of distribution.
113. Facial nerve. Nuclei - position, characteristic. The course, branches, area of distribution.

114. Glossopharyngeal nerve. Nuclei - position, characteristic. The course, branches, area of distribution.
115. Vagus nerve. Nuclei - position, characteristic. The course, branches, area of distribution.
116. Accessory nerve, hypoglossal nerve. Nuclei - position, characteristic. The course of the nerves, branches, area of distribution.
117. Oral region. Oral cavity – oral vestibule, lips, cheeks. Structure. Blood and nerve supply.
118. Oral cavity. Hard and soft palate. Structure. Blood and nerve supply. Palatine tonsils.
119. Tooth – general description and structure. Dental cuticle, enamel and cementum – structure and physical properties. Types of cementum. Cementoenamel junction.
120. Tooth – general description and structure. Dentine - structure and physical properties. Dental pulp. Periodontium.
121. Gingiva (Gums) – structure. Gingival fibers. Parodontium. Blood and nerve supply.
122. Blood and nerve supply of the teeth. Lymph nodes collecting lymph from gums, upper and lower teeth.
123. Dentition – deciduous and permanent. Tooth eruption. Stages of dentition. Characteristics of human dentition. Types of occlusion.
124. Stages of tooth development (odontogenesis). Peculiarities of deciduous teeth.
125. Tongue – position, parts and surfaces. Morphological characteristics – lingual papillae. Muscles of the tongue. Blood and nerve supply.
126. Salivary glands. Classification, position, structure. Blood and nerve supply.
127. Parapharyngeal Space – Lateral pharyngeal and retropharyngeal spaces.
128. Nasal region. Nasal cavity – parts, description and nasal mucosa. Blood and nerve supply.
129. Paranasal sinuses.
130. Muscles of facial expression.
131. Muscles of mastication. Temporomandibular joint.
132. Frontoparietooccipital region.
133. Temporal region.
134. Infratemporal region.
135. Orbital region.
136. Infraorbital, zygomatic, mental and buccal region.
137. Parotidomasseteric region.
138. Sublingual region.

### **Recommended literature for study:**

1. Williams B, Bannister L, Berry M et al. Gray's Anatomy. 38<sup>th</sup> edition. New York: Churchill Livingstone, 1995.
2. Krishna Garg. B D Chaurasia's Human Anatomy: Regional and Applied Dissection and Clinical Head Neck and Brain (Volume - 3) 4<sup>th</sup> edition. CBS Publisher, 2010.
3. William DeMyer. NMS Neuroanatomy. 2<sup>nd</sup> edition. Williams & Wilkins, 1998.
4. Vankova M. Vankov's anatomy. Central nervous system. Steno Publishing House. Varna, 2012.
5. Sobotta. Atlas of Human anatomy, 14<sup>th</sup> edition, Urban & Fisher, 2006
6. Делчев С, Иванова Р, Новаков С. Фотографски атлас по анатомия (под редакцията на Сивков С) Медицинско издателство ВАП, Пловдив, 2012

Prepared by Dr. S. Novakov and Prof. Dr. Y. Koeva

Confirmed by Prof. Dr. S Sivkov

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