

## **LIST OF EXAMINATION QUESTIONS ON HUMAN ANATOMY FOR FOREIGN FACULTY STUDENTS**

### **I. GENERAL THEORETICAL QUESTIONS. HISTORY OF ANATOMY.**

1. Human anatomy as science, its value for medicine. Methods of research in anatomy.
2. The basic stages of ontogenesis of the person. Embryogenesis, its periods. Germinal layers and their differentiation.
3. The postnatal period of development of the person. Age periods of children.
4. Anatomic and medical anthropology. Concepts about norm, variants of norm and anomalies of development.
5. The anatomic constitution of the person and ways of its examination.
6. Stages of development of human anatomy.
7. Development of anatomic science in Belarus.

### **II. ANATOMY OF THE LOCOMOTOR SYSTEM.**

8. Skeleton of the person, its function and parts.
9. Types of osteogenesis. Development of bones in ontogenesis, factors influencing on it.
10. Bone as body. Classification of bones, their structure. A bone in the x-ray image.
11. Spinal column. The vertebrae, features of their structure in various departments. Variants and anomalies of their development.
12. Ribs and sternum. Connections of ribs with vertebrae and sternum.
13. Thorax as a whole.
14. Bones of a pectoral girdle and their connection. X-ray anatomy.
15. Bones of a shoulder and forearm. Features of a structure of tubular bones.
16. Bones of a hand and their connection. X-ray anatomy of a hand.
17. Hipbone. Connections of bones of a pelvis. Age features of a pelvis. X-ray anatomy.
18. Pelvis as a whole. The diameters of a female basin. Sexual differences.
19. Femur, patella, bones of a leg.
20. Bones of a foot and their connections. Vaults of a foot. X-ray anatomy of a foot.
21. Development of a skull in ontogenesis. Age, sexual and individual features of a skull. Developmental anomalies.
22. Temporal bone: its parts, canals and their appointment.
23. Sphenoid bone: its parts, foramens and their appointment.
24. Occipital, frontal and parietal bones.
25. Bones of a facial skull. Upper and lower jaw. Ethmoid, palatine and zygomatic bones.

26. Orbit: its walls, foramens, canals.
27. Cavity of a nose: its walls, nasal meatuses.
28. The skullcap. Temporal, infratemporal and pterygopalatine fossae.
29. The external basis of a skull: departments, foramens and their appointment.
30. The internal basis of a skull: fossae, foramens and their appointment.
31. Connections of a skull. Age features. X-ray anatomy of a skull.
32. Temporo-mandibular joint. Blood supply, innervations.
33. Classification of connections of bones. Continuous connections.
34. Structure of a joint.
35. Classification of joints: according of number of articulate surfaces, the shape of articulate surfaces and on function. X-ray anatomy of joints.
36. Connections of a vertebral column with a skull.
37. Connections between vertebrae.
38. Vertebral column as a whole. X-ray anatomy of a vertebral column.
39. Shoulder joint. Blood supply, innervations, X-ray anatomy.
40. Elbow joint. Blood supply, innervations, X-ray anatomy.
41. Radiocarpal joint. Blood supply, innervations, X-ray anatomy.
42. Hip. Blood supply, innervations, X-ray anatomy.
43. Knee joint. Blood supply, innervations, X-ray anatomy.
44. Ankle joint. Blood supply, innervations, X-ray anatomy.
45. Kinds of a muscular tissue. A skeletal muscle as a body. Classification of muscles.
46. Development of skeletal muscles. Developmental anomalies.
47. The auxiliary apparatus of muscles. Bases of biomechanics of muscles.
48. Muscles and fasciae of back, their blood supply, innervations.
49. Muscles and fasciae of thorax, their blood supply, innervations.
50. Diaphragm, its blood supply and innervations.
51. Muscles and fasciae of abdomen, their blood supply, innervations. A vagina of a rectus muscle of abdomen (scheme).
52. The inguinal canal. Weak places of walls of an abdominal cavity.
53. Muscles of a neck, their blood supply, innervations.
54. Fasciae of a neck, their classification after Shevkunenko (scheme).
55. Topography of a neck.
56. Chewing muscles and fasciae, their blood supply, innervations.
57. Muscles of facial expression, their blood supply, innervations.
58. Muscles and fasciae of shoulder girdle, their blood supply, innervations.
59. Axillary fossa (area), its borders. An axillary cavity, its walls and contents.
60. Muscles and fasciae of a shoulder, their blood supply, innervations. Topography of a shoulder.
61. Muscles and fasciae of a forearm, their blood supply, innervations. Topography of a forearm.
62. Muscles of a hand, their blood supply, innervations. Topography of a hand.

63. Muscles and fasciae of the pelvic girdle, their blood supply, innervations. Topography of gluteus area.
64. Muscles and fasciae of thigh, their blood supply, innervations.
65. Topography of a thigh: muscular and vascular lacunas, the femoral canal, the femoral triangle, adductor canal.
66. Muscles and fasciae of the leg, their blood supply, innervations. Topography of a leg.
67. Muscles and fasciae of the foot, their blood supply, innervations. Topography of the foot.

### **III. ANATOMY OF INTERNAL ORGANS**

68. General plan of a structure of internal organs, their classification. Glands.
69. Development of digestive system. Developmental anomalies.
70. Topographical lines of a thorax. Areas of abdomen.
71. Abdominal cavity. Peritoneum: development, functions, a structure. A course of peritoneum (scheme).
72. The common principles of a structure of a wall of a digestive tube.
73. Digestive glands: their structure, classification.
74. Oral cavity. Blood supply, innervations, walls of an oral cavity, lymphatic drainage. Age features of an oral cavity.
75. Teeth: deciduous and permanent. A tooth as a body. Blood supply, innervations of teeth and gingivae, lymphatic drainage.
76. The tongue. Blood supply, innervations, lymphatic drainage.
77. Sublingual, submandibular and parotid salivary glands. Blood supply, innervations, lymphatic drainage.
78. Pharynx. Blood supply, innervations, lymphatic drainage. Lymphoid ring.
79. Esophagus. Blood supply, innervations, lymphatic drainage. X-ray anatomy.
80. Stomach. Blood supply, innervations, lymphatic drainage. X-ray anatomy.
81. Stomach: topography, X-ray anatomy (scheme).
82. Duodenum. Blood supply, innervations, lymphatic drainage.
83. Topography of a duodenum. Variants of the shape, development and position.
84. The small intestine (jejunum and ileum). Blood supply, innervations, lymphatic drainage. X-ray anatomy.
85. The large intestine (colon). Blood supply, innervations, lymphatic drainage. X-ray anatomy.
86. Caecum and vermiform process. Blood supply, innervations, lymphatic drainage.
87. Rectum. Blood supply, innervations, lymphatic drainage.
88. Liver: an external structure, topography. Blood supply, innervations, lymphatic drainage.
89. Liver: functions, development, an internal structure, system of blood circulation of a liver.
90. Gall bladder. Blood supply, innervations, lymphatic drainage. Excretory channels of a liver and gall bladder (scheme).
91. Pancreas. Blood supply, innervations, lymphatic drainage.

92. Topography of the upper floor of a peritoneal cavity. A small omentum. Blood supply and innervations of peritoneum.
93. Topography of a middle floor of a peritoneal cavity. The large omentum.
94. Topography of a lower floor of a peritoneal cavity. Sexual features.
95. Development of respiratory system. Developmental anomalies. The common principles of a structure of respiratory pathways.
96. External nose. A cavity of a nose. Paranasal sinuses. Blood supply, innervations, lymphatic drainage.
97. Larynx: cartilages, ligaments, muscles. Topography.
98. Cavity of a larynx. Blood supply, innervations, lymphatic drainage. The sound producing.
99. Trachea and bronchial tubes. Blood supply, innervations, lymphatic drainage. 100. Lungs. Blood supply, innervations, lymphatic drainage.
101. Borders of lungs. X-ray anatomy of lungs. Developmental anomalies.
102. Pleura. Blood supply, innervations, lymphatic drainage. Borders of pleura.
103. Mediastenum: departments, organs of mediastinum.
104. Development of urinary system. Developmental anomalies.
105. Development of genital system. Developmental anomalies.
106. The common principle of a structure of urinogenital organs.
107. Kidney: the external structure, the fixing device, topography. Blood supply, innervations, lymphatic drainage.
108. Kidney: an internal structure, structural and structurally-functional units of a kidney. System of blood circulation in kidneys.
109. Lesser and larger renal calyces, renal pelvis, ureter. Blood supply, innervations, lymphatic drainage. The fornical apparatus. Excretory tree of kidneys.
110. Urinary bladder. Blood supply, innervations, lymphatic drainage.
111. Male and female urethrae. Blood supply, innervations, lymphatic drainage.
112. Яичко and an appendage яичка. Blood supply, иннервация, lymphatic drainage.
113. Coats of testis and spermatic cord, their origin. Spermatic cord and deferent duct. Blood supply, innervations, lymphatic drainage.
114. Prostate, seminal vesicles, bulbourethral glands. Blood supply, innervations, lymphatic drainage.
115. External male genitals. Blood supply, innervations, lymphatic drainage.
116. Uterus. Blood supply, innervations, lymphatic drainage.
117. Uterine tube. Blood supply, innervations, lymphatic drainage.
118. Ovary. Blood supply, innervations, lymphatic drainage.
119. Vagina and external female genitals. Blood supply, innervations, lymphatic drainage.
120. Perineum. Muscles and fasciae of perineum. Blood supply, innervations. 121. Topography of perineum. Sexual differences of perineum.

#### **IV. ANATOMY OF ENDOCRINE GLANDS**

122. Endocrine glands: the common anatomical and functional characteristic.
123. Group of endocrine glands of adrenal system: adrenal glands, paraganglia. Blood supply, innervations of the adrenal glands, lymphatic drainage.
124. Branchiogenic group of the endocrine glands: thyroid and parathyroid glands. Blood supply, innervations, lymphatic drainage.
125. Neurogenic group of the endocrine glands: medulla of an adrenal gland, hypophysis, pineal body (epiphysis). Blood supply, innervations.

#### **V. ANATOMY OF HEART, BLOOD AND LYMPHATIC VESSELS, ORGANS OF HAEMOPOESIS AND IMMUNE SYSTEMS**

126. Circles of blood circulation. Vessels of the lesser and greater blood circulation.
127. General anatomy of arterial vessels, laws of their arrangement and branching.
128. The characteristic of microcirculatory channels.
129. Anastomoses. Collateral blood circulation. Intersystem venous anastomoses: cava-caval and porta-caval (schemes).
130. General anatomy of venous vessels. Laws of a structure.
131. Features of fetus blood circulation. Changes of blood circulation after a birth.
132. Development of blood vessels of the person. The basic anomalies and defects of their development.
133. Heart: topography and x-ray anatomy.
134. Structure of chambers of heart.
135. Valves of heart: their structure, a projection to a thorax, places of their auscultation.
136. Features of a structure of a wall of heart.
137. Conducting system of heart.
138. Blood supply and innervations of heart. Types of blood supply of heart.
139. Pericardium. Blood supply, innervations.
140. Development of heart. Developmental anomalies of heart.
141. Aorta, its parts and branches: an ascending part, an arch of the aorta, a descending part.
142. Thoracic part of a descending aorta and its branches.
143. Parietal and paired visceral branches of abdominal part of a descending aorta.
144. Unpaired visceral branches of abdominal part of an aorta.
145. External carotid: topography, branches, areas of blood supply.
146. Internal carotid: topography, branches, areas of blood supply.
147. Blood supply of a brain (the scheme of Willi's circle).
148. Subclavian artery: topography, branches, areas of blood supply.
149. Axillary artery: topography, branches, areas of blood supply.
150. Brachial artery: topography, branches, areas of blood supply.

151. Arteries of a forearm: topography, branches, areas of blood supply.
152. Arteries and arterial arches of a hand. Features of blood supply of fingers.
153. Common and external iliac arteries: topography, branches, areas of blood supply.
154. Internal iliac artery: topography, branches, areas of blood supply.
155. Femoral artery: topography, branches, areas of blood supply.
156. Popliteal artery: topography, branches, areas of blood supply.
157. Arteries of a leg: topography, branches, areas of blood supply.
158. Arteries of a foot: topography, branches, areas of blood supply.
159. Superior vena cava and its inflows.
160. Azygos and hemiazygos veins: formation, inflows, topography.
161. Brachiocephalic veins and their inflows. Ways of outflow of venous blood from a head and neck.
162. Internal jugular vein and its inflows. Venous sinuses of the dura mater.
163. Subclavian vein. Superficial and deep veins of the upper extremity.
164. Inferior vena cava, its parietal and visceral inflows.
165. System of portal vein and its inflows.
166. Iliac veins, their formation and inflows.
167. Deep and superficial veins of the lower extremity.
168. The common principles of a structure of lymphatic system, its function.
169. Lymph node as a body. Classification of lymph nodes.
170. Thoracic duct and the right lymphatic duct, their formation, topography.
171. Lymphatic vessels and regional lymph nodes of a head and neck.
172. Lymphatic vessels and regional lymph nodes of the upper extremity.
173. Outflow of a lymph from mammary gland.
174. Lymphatic vessels and regional lymph nodes of a thoracic cavity.
175. Lymphatic vessels and regional lymph nodes of abdominal cavity.
176. Lymphatic vessels and regional lymph nodes of a pelvis.
177. Lymphatic vessels and regional lymph nodes of the lower extremity.
178. Organs of immune system: classification and anatomic and functional characteristic.
179. Spleen. Blood supply, innervations.

## **VI. ANATOMY OF THE CENTRAL NERVOUS SYSTEM**

180. Nervous system, its value. Classification of nervous system. A reflex arch (scheme).
181. Development of nervous system. Developmental anomalies.
182. Development of spinal cord and brain. Brain vesicles and their derivatives.
183. Spinal cord, an external and internal structure (scheme). A segment of a spinal cord. Proper apparatus of spinal cord.
184. The apparatus of two-way connections of spinal cord with brain.
185. Meninges of a spinal cord. Blood supply of a spinal cord.
186. Brain stem, its parts. A medial loop: structure of fibers, topography.

187. Medulla oblongata, its external and internal structure (scheme).
188. Pons, its external and internal structure (scheme). An isthmus of a rhombencephalon.
189. Cerebellum: functions, stages of development, a structure. Peduncles of a cerebellum, their fiber structure.
190. Rhomboid fossa. Projection of nuclei of cranial nerves to it.
191. IV ventricle of a brain. Ways of outflow of a cerebrospinal fluid.
192. Midbrain, its external and internal structure (scheme).
193. Diencephalon: functions, development, departments. III ventricle of a brain.
194. Thalamencephalon, its departments, nuclei of thalamus and their functional value.
195. Hypothalamus, its departments, functional value. Hypothalamo-hypophisar system.
196. Telencephalon, common plan of a structure. A pallium: sulci and gyri of medial and inferior surfaces of hemispheres of the brain.
197. Pallium: sulci and gyri of superolateral surface of hemispheres of the brain. Topography of cortical ends of analyzers of II and I alarm systems.
198. Basal ganglia, their structure (scheme) and appointment. Striopallidar system.
199. White substance of a telencephalon, types of fibers. An arrangement and functional value of projective fibers of an internal capsule.
200. Olfactory brain, its peripheral and central departments. Limbic system, its functional value.
201. Lateral ventricles of telencephalon, their wall. Choroid plexuses of ventricles of a brain. The cerebrospinal fluid.
202. Meninges of a brain. Sinuses of the dura mater, their connection with external veins of a head. Intermeningeal spaces.
203. Blood supply of a brain.
204. Reticular formation, its functional value.
205. Conducting tracts of tactile sensitivity (tactile sense, pressure, stereognosis) (scheme).
206. Conducting tracts of exteroceptive kinds of sensitivity (pain and temperature) (scheme).
207. Conducting tracts of proprioceptive feeling. (the scheme of the motor analyzer).
208. Ascending and descending tracts of a cerebellum.
209. Motor conducting pyramidal tracts (scheme).
210. Motor conducting extrapyramidal tracts (scheme).

## **VII. ANATOMY OF PERIPHERAL NERVOUS SYSTEM**

211. Spinal nerve: its formation (scheme), branches, plexuses, their characteristic.
212. Cranial nerves: features of their formation, the characteristic of fiber structure, classification.
213. Posterior branches of spinal nerves, a structure, and areas of innervations.
214. A cervical plexus: a structure, topography, branches, areas of innervations.
215. A brachial plexus: a structure, topography. Short branches of a brachial plexus and their area of innervations.
216. A brachial plexus: long branches, topography, areas of innervations.
217. A median nerve: topography, branches, areas of innervations.
218. An ulnar nerve: topography, branches, areas of innervations.
219. A radial nerve: topography, branches, areas of innervations.

220. Innervations of skin of the upper extremity.
221. Intercostal nerves: a structure, topography, branches, areas of innervations.
222. A lumbar plexus: a structure, topography, branches, areas of innervations.
223. A femoral nerve, topography, branches, areas of innervations.
224. A sacral plexus: a structure, topography, short branches, areas of innervations.
225. A sacral plexus: a structure, topography, long branches, areas of innervations.
226. A sciatic nerve: topography, branches, areas of innervations.
227. Tibial nerve: topography, branches, areas of innervations.
228. Innervations of skin of the lower extremity.
229. Olfactory nerves (I). Conducting tracts of the olfactory analyzer (scheme).
230. Optic nerve (II). Conducting tracts of the visual analyzer (scheme).
231. Oculomotor (III), trochlear (IV) and abducens (VI) nerves: nuclei, structure of fibers, topography, branches, area of innervations. A tract of pupillary reflex.
232. Trigeminal nerve (V): its formation, topography, branches, areas of innervations.
233. Ophthalmic branch of a trigeminal nerve: topography, areas of innervations. 234. Maxillary branch of a trigeminal nerve: topography, areas of innervations.
235. Mandibular branch of a trigeminal nerve: topography, areas of innervations.
236. Facial nerve (VII): its formation, topography, branches and areas of innervations.
237. Intermediate nerve: its formation, topography, branches and areas of innervations. Relation with facial nerve.
238. Vestibulocochlear nerve (VIII): its formation, parts. Conducting tracts of acoustical and vestibular analyzers (scheme).
239. Glossopharyngeal nerve (IX): its formation, topography, branches, areas of innervations.
240. Vagus nerve (X): its formation, topography, branches, areas of innervations.
241. Accessory (XI) and hypoglossal (XII) nerves: their formation, topography, branches, areas of innervations.
242. Vegetative part of nervous system: anatomic and functional characteristic. Features of a structure of a reflex arch of vegetative nervous systems (scheme).
243. Difference of vegetative nervous system from somatic.
244. Parasympathetic department of vegetative nervous system: cranial and sacral departments, their common characteristic.
245. Sympathetic department of vegetative nervous system, common characteristic.
246. Cervical department of a sympathetic trunk: topography, ganglions, branches.
247. Thoracic department of a sympathetic trunk: topography, ganglions, branches.
248. Lumbar and sacral departments of a sympathetic trunk: topography, ganglions, branches. Vegetative plexuses of a pelvis.
249. Coeliac (solar) and aortorenal plexuses: formation, topography, ganglions, branches, secondary plexuses.
250. Principle of innervations of internal organs. Interceptive analyzer.

## **VII. ANATOMY OF SENCE ORGANS**

251. Concept about a sense organ and sensory system. The analyzer: components, classification.



252. The organ of vision: a common plan of a structure of an eye. Development, developmental anomalies.
253. An eyeball and its coats: fibrous and vascular.
254. An eyeball: the retina of an eye. Conducting tract of the visual analyzer (scheme).
255. An eyeball: refracting media of an eye. The mechanism of accommodation.
256. The accessory structures of an eye: muscles of an eyeball, fasciae of eye socket, palpebrae, the lacrimal apparatus, conjunctiva of the eyes. Vessels and nerves of organ of vision.
257. The organ of hearing and balance: a common plan of a structure. Development, developmental anomalies.
258. The external and middle ear: functions, components. Blood supply, innervations and lymphatic drainage.
259. The internal ear: bony and membranous labyrinths.
260. Conducting tracts of vestibular (statokinetic) analyzer (scheme).
261. Conducting tracts of an acoustic analyzer (scheme).
262. The organ of smell. Conducting tracts of the olfactory analyzer (scheme).
263. The organ of taste. Conducting tracts of the flavoring analyzer (scheme).
264. Anatomy of a skin and its derivatives. Mammary gland: topography, a structure. Blood supply, innervations and lymphatic drainage.

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