MINISTRY OF HEALTH OF THE REPUBLIC OF BELARUS
EDUCATIONAL INSTITUTION
BELARUSIAN STATE MEDICAL UNIVERSITY

QUESTIONS
for the exam on Human Anatomy
for students of medical faculty
(in English)

Specialty: 7-07-0911-01 General Medicine

Minsk 2025

1. Theoretical questions.

1. Subject of Human Anatomy. Different types of Anatomy. Importance of Anatomy in the complex of medico-biological and clinical disciplines.
2. Research methods in Anatomy.
3. Anatomical terminology. Anatomical terms of location and direction: axes and planes.
4. Organs and systems of organs. Concept of "norm" and "variants of norm" in the structure of the body and individual organs. Constitution (body) types.
5. Parts and regions of the human body.
6. Anatomy in Belarus.
7. Ethical aspects concerning anatomical human material.

2. Anatomy of locomotor apparatus

1. Bone as an organ: development and structure. Classification of bones.
2. Vertebrae: their development, structure in different parts of the vertebral column. Vertebral joints. X-ray anatomy of the vertebral column.
3. Joints between the vertebral column and cranium. Muscles producing movements of the head.
4. Vertebral column: structure, curves, movements. Muscles producing movements of the vertebral column.
5. Ribs and sternum: their structure. Joints of ribs with the vertebral column and sternum. Thorax: its individual, age-specific and typological features, X-ray anatomy. Muscles producing movements of the ribs.
6. Cranium: neurocranium and viscerocranium, development. Cranium of a newborn. Typological, individual, age- and sex-related features of the human cranium. X-ray anatomy of the cranium.
7. Frontal, parietal, and occipital bones: topography, structure, foramina and their designation.
8. Ethmoid and sphenoid bones: topography, structure, foramina and their designation.
9. Temporal bone: topography, structure, foramina and canals and their designation.
10. Maxilla and mandible: topography, structure, foramina and canals and their designation.
11. Orbit: structure of its walls, openings and their designation.
12. Nasal cavity: its bony walls. Nasal meatuses and their communications with the paranasal sinuses, orbit and pterygopalatine fossa.
13. Base of the cranium, internal aspect: foramina, canals and their designation.
14. Base of the cranium, external aspect: foramina, canals and their designation.
15. Temporal and infratemporal fossae: topography and walls. Pterygopalatine fossa: topography, walls, openings and their designation.
16. Classification of bony joints. Continuous joints: Synarthroses.
17. Discontinuous (synovial) joints: diarthroses. Their structure and classification.
18. Joints of skull. Temporomandibular joint: structure, type, movements, blood supply, muscles producing movements in the joint.
19. Bones of pectoral (shoulder) girdle. Joints of pectoral (shoulder) girdle: structure, type, movements and blood supply. Muscles moving the scapula and clavicle.
20. Bones of free upper limb. X-ray anatomy of bones of upper limb.
21. Shoulder joint: structure, type, movements, X-ray anatomy and blood supply. Muscles producing movements in the joint.
22. Elbow joint: structure, type, movements, X-ray anatomy, and blood supply. Muscles producing movements in the joint.
23. Articulations between the bones of the forearm. Wrist joint: structure, type, movements, X-ray

anatomy and blood supply. Muscles producing movements in the joint.

24. Joints of hand: structure, types, movements, X-ray anatomy and blood supply. Muscles producing movements in the joints of hand.
25. Bones and joints of pelvic girdle. Pelvis as a whole. Sex characteristics of the pelvis. Measurements of the female pelvis.
26. Bones of free lower limb. X-ray anatomy of bones of free lower limb.
27. Hip joint: structure, type, movements, X-ray anatomy and blood supply. Muscles producing movements in the joint.
28. Knee joint: structure, type, movements, X-ray anatomy, and blood supply. Muscles producing movements in the joint.
29. Articulations between the bones of the leg. Ankle joint: structure, type, movements, X-ray anatomy and blood supply. Muscles producing movements in the joint.
30. Joints of foot: structure, types, movements, X-ray anatomy and blood supply. Muscles producing movements in the joints of foot. Arches of foot.
31. General myology: development, structure and classification of muscles. Auxiliary structures of skeletal muscles.
32. Muscles and fasciae of back: topography, structure, functions, blood supply and innervation.
33. Muscles and fasciae of thorax: topography, structure, functions, blood supply and innervation.
34. Diaphragm: topography, structure, functions, blood supply and innervation.
35. Muscles and fasciae of abdomen: topography, structure, functions, blood supply and innervation. Rectus sheath. Linea alba of the abdomen.
36. Inguinal canal: topography and structure. "Weak" places of the abdominal wall.
37. Muscles of neck: topography, structure, functions, blood supply and innervation.
38. Fasciae and fascial spaces of the neck. Regions and triangles of the neck.
39. Facial muscles: topography, structure, functions, blood supply and innervation.
40. Masticatory muscles: topography, structure, functions, blood supply and innervation.
41. Muscles and fasciae of pectoral (shoulder) girdle: topography, structure, functions, blood supply and innervation.
42. Muscles and fasciae of the arm: topography, structure, functions, blood supply and innervation.
43. Muscles and fasciae of the forearm: topography, structure, functions, blood supply and innervation.
44. Muscles and fasciae of the hand: topography, structure, functions, blood supply and innervation.
45. Osteofibrous canals and synovial bursae of the hand.
46. Axillary region. Axillary fossa (cavity): walls, foramina and their designation.
47. Topographic anatomy of the shoulder, forearm and hand (canals, grooves and fossae).
48. Muscles of the pelvic girdle: topography, structure, functions, blood supply and innervation. Obturator canal, suprapiriform and infrapiriform foramina and their contents.
49. Anterior group of the thigh muscles: topography, structure, functions, blood supply and innervation.
50. Fasciae of thigh. Muscular and vascular lacunae and their contents. Femoral canal.
51. Medial and posterior groups of the thigh muscles: topography, structure, functions, blood supply and innervation. Adductor canal.
52. Muscles and facsiae of the leg: topography, structure, functions, blood supply and innervation.
53. Muscles and fasciae of the foot: topography, structure, functions, blood supply and innervation.
54. Topographic anatomy of the lower limb (canals, grooves, fossae, foramina).

3. Anatomy of internal organs.

1. General anatomy of internal organs. Systems of internal organs. Parenchymatous and tubular (hollow) organs, general patterns of their structure.
2. General structural characteristics of the alimentary (digestive) system. Development of organs of the alimentary system and their anomalies.
3. Oral cavity: structure, blood supply, innervations, lymphatic drainage of its walls and associated organs.
4. Permanent teeth: structure, dental arch and dental formula. Blood supply, innervations and lymphatic drainage of teeth.
5. Deciduous teeth: structure, dental arch and dental formula. Eruption times for deciduous and permanent teeth.
6. Tongue: structure, functions, blood supply, innervation, lymphatic drainage.
7. Parotid, sublingual and submandibular salivary glands: topography, structure, blood supply, innervation, lymphatic drainage. Minor salivary glands.
8. Pharynx: topography, structure, blood supply, innervation, lymphatic drainage. Pharyngeal lymphoid ring.
9. Esophagus: topography, structure, X-ray anatomy, blood supply, innervation, lymphatic drainage.
10. Stomach: topography, structure, functions, X-ray anatomy, blood supply, innervation, lymphatic drainage.
11. Small intestine: topography and parts, general structural characteristics, functions, X-ray anatomy, blood supply, innervation, lymphatic drainage.
12. Duodenum: topography, structure, blood supply, innervation, lymphatic drainage.
13. Mesenteric part of the small intestine: topography, structure, blood supply, innervation, lymphatic drainage.
14. Large intestine: topography and parts, general structural characteristics, functions, X-ray anatomy, blood supply, innervation, lymphatic drainage.
15. Caecum and vermiform appendix: their topography, structure, blood supply, innervation, lymphatic drainage.
16. Rectum: topography, structure, blood supply, innervation, lymphatic drainage.
17. Liver: topography, structure, functions, blood supply, innervation, lymphatic drainage.
18. Gallbladder: topography, structure, functions, blood supply, innervation, lymphatic drainage. Intra– and extrahepatic biliary ducts.
19. Pancreas: topography, structure, functions, blood supply, innervation, lymphatic drainage.
20. Peritoneum: parietal, visceral; peritoneal cavity, extraperitoneal space. Functions of the peritoneum. Topography of the peritoneum in the upper floor (supracolic compartment) of the abdominal cavity. Lesser omentum and omental bursa. Subphrenic and subhepatic spaces; hepatorenal recess.
21. Topography of the peritoneum in the lower floor (infracolic compartment) of the abdominal cavity. Paracolic gutters (grooves), mesenteric sinuses and peritoneal recesses. Greater omentum. Topography of the peritoneum in the male and female pelvis.
22. General structural characteristics of the respiratory system. Development of organs of the respiratory system and their anomalies.
23. External nose, nasal cavity and paranasal sinuses: blood supply, innervation, lymphatic drainage.
24. Larynx: topography, laryngeal cartilages, joints and ligaments. Laryngeal cavity.
25. Muscles of larynx: classification, topography, structure, functions. Blood supply, innervation and lymphatic drainage of the larynx.

26. Trachea and bronchi: topography, structure, X-ray anatomy, blood supply, innervation, lymphatic drainage.
27. Lungs: structure, projection on the thoracic wall, X-ray anatomy, blood supply, innervation, lymphatic drainage.
28. Pleura: visceral and parietal; pleural cavity and pleural recesses. Projections of the pleura reflections on the thoracic wall. Blood supply and innervation of the pleura.
29. Mediastinum: divisions and organs. Connections of the mediastinum and the fascial spaces of the neck.
30. Urinary organs: general characteristics, development and anomalies.
31. Kidneys: topography, structure, functions, X-ray anatomy, blood supply, innervation, lymphatic drainage.
32. Ureters: topography, structure, functions, X-ray anatomy, blood supply and innervations. Urinary bladder: topography, structure, sex differences, blood supply, innervation, lymphatic drainage.
33. Urethra: topography, parts, structure, sex differences, blood supply and innervation.
34. Male genitalia: general characteristics, development and anomalies.
35. Testes: topography, structure, functions, blood supply, innervation, lymphatic drainage. Epididymis. Coverings of the testis.
36. Prostate: topography, structure, functions, blood supply, innervation, lymphatic drainage.
37. Spermatic cord, ductus (vas) deferens, seminal glands (vesicles) and bulbo-uretral glands: their topography, structure, functions, blood supply, innervation, lymphatic drainage.
38. Male external genitalia: structure, blood supply, innervation, lymphatic drainage.
39. Female genitalia: general characteristics, development and anomalies.
40. Ovaries: topography, structure, functions, blood supply, innervation, lymphatic drainage. Epoophoron and paroophoron, their topography.
41. Uterus: topography, parts, structure, functions, blood supply, innervation, lymphatic drainage.
42. Uterine tubes: topography, parts, structure, functions, blood supply, innervation, lymphatic drainage.
43. Vagina: topography, structure, blood supply, innervation, lymphatic drainage. Female external genitalia: structure, blood supply, innervation, lymphatic drainage.
44. Perineum: structure, sex differences, blood supply, innervation, lymphatic drainage.

4. Anatomy of cardiovascular system and lymphoid system

1. General characteristics of the cardiovascular system: heart, arteries, vessels of microcirculation, veins. Development of the heart and its anomalies.
2. Arteries: structure and functions. Arterial anastomoses: homocladic (intrasystemic) and heterocladic (intersystemic): their role, examples. Collateral circulation.
3. Veins: structure and functions. Factors promoting venous return to the heart. Venous anastomoses: homocladic (intrasystemic) and heterocladic (intersystemic); their importance, examples.
4. Heart: topography, structure; projections of its borders on the thoracic wall.
5. Structure of cardiac chambers. Heart valves: their topography, structure, role in the blood flow. Projection of the valves on the anterior thoracic wall, points of their auscultation.
6. Structure of the heart wall. Conducting system of the heart.
7. Pericardium: topography, structure, function, blood supply, innervation; pericardial cavity and its sinuses.

8. Blood supply, lymphatic drainage and innervation of the heart.
9. Blood circulation in fetus and its changes after birth.
10. Vessels of the pulmonary (lesser) circulation and systemic (greater) circulation. Arteries distribution patterns in the hollow and the parenchymal organs.
11. Aorta: its parts and topography. Branches of the aortic arch and supplied areas.
12. Common carotid artery, its topography. External carotid artery: topography, branches and supplied areas.
13. Internal carotid artery: topography, branches and supplied areas.
14. Blood supply to the brain.
15. Arteries and veins of the eye and accessory visual structures. Outflow pathways of the venous blood from the orbit.
16. Subclavian artery: topography, branches and supplied areas.
17. Axillary artery: topography, branches and supplied areas.
18. Brachial artery: topography, branches and supplied areas.
19. Arteries of the forearm: topography, branches and supplied areas.
20. Arteries of the hand: topography, branches and supplied areas. Palmar arterial arches.
21. Thoracic aorta: parietal and visceral branches, their topography and supplied areas.
22. Abdominal aorta: parietal and visceral branches: their topography and supplied areas.
23. Common, external and internal iliac arteries: topography, branches and supplied areas.
24. Femoral artery: topography, branches, and supplied areas.
25. Popliteal artery: topography and branches. Blood supply to the knee joint.
26. Arteries of the leg and foot: topography, branches and supplied areas.
27. Superior vena cava and brachiocephalic veins: formation, topography and tributaries. Anastomoses of superior vena cava with inferior vena cava and portal vein.
28. Azygos and hemiazygos veins: formation, topography and tributaries.
29. Internal, external and anterior jugular veins: formation, topography and tributaries.
30. Veins of the brain. Dural venous sinuses. Emissary and diploic veins. Anastomoses between intra- and extracranial veins.
31. Superficial and deep veins of the upper limb: formation, topography and tributaries.
32. Portal vein: formation, topography and tributaries; branching of the portal vein in the liver. Portocaval anastomoses.
33. Inferior vena cava: formation, topography and tributaries. Anastomoses of the inferior vena cava with the superior vena cava and portal vein.
34. External, internal and common iliac veins: formation, topography and tributaries.
35. Superficial and deep veins of the lower limb: formation, topography and tributaries.
36. General characteristics of the lymphatic system. Lymphatic capillaries, vessels, lymph nodes, trunks and ducts.
37. Thoracic duct and right lymphatic duct: their formation, topography, drainage areas, connections with the venous system. Factors promoting lymph flow.
38. Lymph node: structure and functions. Classification of lymph nodes.
39. Lymphatic vessels and regional lymph nodes of head and neck.
40. Lymphatic vessels and regional lymph nodes of upper limb.
41. Lymphatic vessels and regional lymph nodes of lower limb.
42. Thoracic lymphatic vessels and lymph nodes.
43. Lymphatic vessels and regional lymph nodes of the mammary gland.
44. Abdominal lymphatic vessels and lymph nodes.

45. Pelvic lymphatic vessels and lymph nodes.
46. Lymphoid system: primary (central) and secondary (peripheral) lymphoid organs, their topography, structure and function.
47. Thymus: topography, structure, blood supply and innervation. Red bone marrow.
48. Spleen: topography, structure, function, blood supply and innervation.

5. Anatomy of central nervous system

1. Human nervous system and its functions. Topographic, structural and functional divisions of the nervous system.
2. Neuron: structure and classification. Neuroglia. Grey and white matter (substance) of the central nervous system, nuclei, ganglia, nerve fibres, fascicles and roots. Structure of the reflex arc.
3. Spinal cord: development, topography, external and internal structure. Blood supply of the spinal cord.
4. Development of the brain: primary cerebral vesicles and their derivatives.
5. Telencephalon. Cerebral hemispheres: surfaces, lobes, sulci and gyri.
6. Functional areas of the cerebral cortex.
7. Olfactory brain: central and peripheral parts. Limbic system.
8. Basal nuclei of the telencephalon.
9. Lateral ventricles of the brain: topography, structure and choroid plexuses.
10. White matter of the telencephalon: association, commissural and projection fibres. Internal capsule.
11. Diencephalon: topography, parts, external and internal structure. Third ventricle.
12. Mesencephalon (midbrain): topography, external and internal structure. Aqueduct of midbrain (cerebral aqueduct).
13. Pons: topography, external and internal structure.
14. Cerebellum: topography, external and internal structure.
15. Myelencephalon (medulla oblongata, bulb): topography, external and internal structure.
16. Rhomboid fossa: its boundaries and relief. Projections of nuclei of cranial nerves on its surface.
17. Fourth ventricle, topography and structure. Cerebrospinal fluid production and outflow.
18. Brainstem. Reticular formation: topography, structure and functions.
19. General characteristics of conducting tracts (pathways) of the central nervous system.
20. Exteroceptive (pain, temperature and tactile) conducting tracts.
21. Proprioceptive (somatosensory) conducting pathways of cerebellar and cortical directions. Medial lemniscus.
22. Pyramidal system. Corticonuclear and corticospinal tracts.
23. Extrapyramidal system. Rubrospinal tract.
24. Meninges of the brain and spinal cord.
25. Dural venous sinuses: topography, structure, functional significance, communications with external veins of the head.

6. Anatomy of peripheral nervous system

1. Spinal nerves: formation, topography, branches, areas of innervation.
2. Cervical plexus: formation, topography, nerves, areas of innervation.
3. Brachial plexus: formation, topography, supra- and infraclavicular parts. Short branches of the brachial plexus: topography and areas of innervation.
4. Long branches of the brachial plexus: topography and areas of innervation.

5. Innervation of the skin of the upper limb.
6. Intercostal nerves: formation, topography, branches, areas of innervation.
7. Lumbar plexus: formation, topography, nerves, areas of innervation.
8. Sacral plexus: formation, topography, nerves, areas of innervation.
9. Long branches of the sacral plexus: topography and areas of innervation.
10. Innervation of the skin of the lower limb.
11. Olfactory nerves (I). Conducting pathway of the olfactory analyzer.
12. Optic nerve (II). Conducting pathway of the visual analyzer.
13. Oculomotor (III), trochlear (IV), abducent (VI) nerves: formation, topography, branches and areas of innervation.
14. Trigeminal nerve (V): formation, topography, branches and areas of innervation.
15. Ophthalmic nerve (1^{st} branch of trigeminal nerve): formation, topography, branches and areas of innervation.
16. Maxillary nerve (2^{nd} branch of trigeminal nerve): formation, topography, branches and areas of innervation.
17. Mandibular nerve (3^{rd} branch of trigeminal nerve): formation, topography, branches and areas of innervation.
18. Facial nerve (VII): formation, topography, areas of innervation. Motor portion of the facial nerve.
19. Intermediate nerve (portion of VII cranial nerve): parasympathetic and sensory portion of the facial nerve. Its formation, topography, areas of innervation.
20. The vestibulocochlear nerve (VIII): formation and topography. Auditory and vestibular (statokinetic) pathways.
21. Glossopharyngeal nerve (IX): formation, topography, branches and areas of innervation.
22. Vagus nerve (X): formation, topography, branches and areas of innervation.
23. Accessory nerve (XI) and hypoglossal nerve (XII): their formation, topography, branches and areas of innervation.
24. General characteristics of autonomic division of nervous system: structure and function. Similarities and differences between autonomic and somatic parts of the nervous systems. Autonomic reflex arc.
25. Parasympathetic part of autonomic nervous system: centers and peripheral part.
26. Sympathetic part of autonomic nervous system: centers and peripheral part.
27. Cervical part of the sympathetic trunk: topography, ganglia, branches and areas of innervation.
28. Thoracic part of the sympathetic trunk: topography, ganglia, branches and areas of innervation.
29. Lumbar and sacral parts of the sympathetic trunk: their topography, ganglia, branches and areas of innervation.
30. Autonomic plexuses of the thoracic, abdominal and pelvic cavities: their topography, ganglia, branches and areas of innervation.

7. Anatomy of sensory organs

1. Organ of hearing and balance: general characteristics. Structures of the ear providing sound transmission and reception.
2. External ear: topography, structure, blood supply, innervation, lymphatic drainage.
3. Middle ear: topography, structure, blood supply, innervation, lymphatic drainage.
4. Internal ear: topography, structure and blood supply.
5. Organ of vision: general characteristics. Eyeball: layers (tunics) of the eyeball, their structure and

functions.

6. Refractory structures (media) of the eye. Chambers of the eyeball. Aqueous humor: functions, formation and outflow.
7. Accessory visual structures.
8. Organ of smell. Olfactory pathway.
9. Organ of taste. Gustatory pathway.
10. Anatomy of skin and its derivatives. Mammary gland: topography, structure, blood supply, innervation, lymphatic drainage.

8. Anatomy of endocrine glands

1. Endocrine glands: classification, general characteristics, features of vascular supply.
2. Thyroid and parathyroid glands: embryonic origins, topography, structure, functions, blood supply and innervation.
3. Pituitary gland (hypophysis) and pineal gland (epiphysis): topography, structure, functions, blood supply and innervation.
4. Suprarenal (adrenal) glands: embryonic origins, topography, structure, functions, blood supply and innervation. Paraganglia (chromaffin bodies).

Утверждено на заседании кафедры нормальной анатомии 21.11.2025, протокол №4

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