Appendix to the working program

Federal State Budgetary Educational Institution of Higher Education
"Privolzhsky Research Medical University"
Ministry of Health of the Russian Federation

BANK OF ASSESSMENT TOOLS FOR DISCIPLINE
HUMAN ANATOMY

Training program (specialty): __**31.05.01 GENERAL MEDICINE**_____
code, name

Department: __**HUMAN ANATOMY**_____

Mode of study ___**FULL-TIME**_____
(full-time/mixed attendance mode/extramural)

Nizhniy Novgorod
2021

1. Bank of assessment tools for the current monitoring of academic performance, mid-term assessment of students in the discipline

This Bank of Assessment Tools (BAT) for the discipline "HUMAN ANATOMY" is an integral appendix to the working program of the discipline "HUMAN ANATOMY". All the details of the approval submitted in the WPD for this discipline apply to this BAT.

(Banks of assessment tools allow us to evaluate the achievement of the planned results stated in the educational program.

Assessment tools are a bank of control tasks, as well as a description of forms and procedures designed to determine the quality of mastering study material by students.)

2. List of assessment tools

The following assessment tools are used to determine the quality of mastering the academic material by students in the discipline “HUMAN ANATOMY”:

No.	Assessment tool	Brief description of the assessment tool	Presentation of the assessment tool in the BAT
1	Test №1	A system of standardized tasks that allows you to automate the procedure of measuring the level of knowledge and skills of a student. A student has to choose one or more answers.	Bank of test tasks (Computer testing; questions and answers)
2	Test №2	A system of standardized tasks that allows you to automate the procedure of measuring the level of knowledge and skills of a student. Preparations control consists of translation in Latin and demonstration of 15 anatomical structures on the preparations, models, plates	Bank of test tasks (lists of structures according to topics of current monitoring and mid-term assessment)
3	Control work	A tool of checking the ability to apply acquired knowledge for solving problems of a certain type by topic or section	Set of control tasks in variants
4	Interview	A tool of control organized as a special conversation between the teacher and the student on topics related to the discipline being studied, and designed to clarify the amount of knowledge of the student on a specific section, topic, problem, etc.	Questions on topics/sections of the discipline

3. A list of competencies indicating the stages of their formation in the process of mastering the educational program and the types of evaluation tools

Code and formulation of competence	Stage of competence formation	Controlled sections of the discipline	Assessment tools
GPC-5 Able to assess morphofunctional, physiological conditions and	Current	Introduction	Test №1
	Current	Locomotor apparatus	Test №1 (Computer testing), Test №2 (Preparations control), Control work

pathological processes in the human body to solve professional problems	Current	Splanchnology	Test №1 (Computer testing), Test №2 (Preparations control), Control work
	Current	Immune system organs and lymph outflow pathways	Test №1 (Computer testing), Control work
	Current	Endocrine glands	Test №1 (Computer testing), Control work
	Current	Cardiovascular system	Test №1 (Computer testing), Test №2 (Preparations control), Control work
	Current	Neurology	Test №1 (Computer testing), Test №2 (Preparations control), Control work
	Current	Sense organs	Test №1 (Computer testing), Test №2 (Preparations control), Control work
	Current	Topography of vessels and nerves in parts of the human body	Test №1 (Computer testing), Test №2 (Preparations control), Control work
GPC-5	Mid-term	All sections	Test №1 (Computer testing), Test №2 (Preparations control), Interview

4. The content of the assessment tools of entry, current control

Current control is carried out by the discipline teacher when conducting classes in the form of *Test №1 (Computer testing), Test №2 (Preparations control), Control work.*

4.1. Test №1 (*Computer testing*) for the assessment of competence "GPC-5" *:*

001 (Locomotor apparatus). Choose one or more answers
True ribs include:
a – I – VII
b – VIII – XII
c – I – X
d – XI – XII

Answer I-VII

002 (Locomotor apparatus). Choose one or more answers
Which of the listed types of joints are continuous (synarthrosis)?
a – synchondrosis
b – synostosis
c – synovial joint
d – fibrous joint

Answers: synchondrosis, synostosis, fibrous joint

003 (Locomotor apparatus). Choose one or more answers
Specify the weak places in the diaphragm – the places of formation of diaphragmatic hernias.
a – esophageal hiatus
b – sternal part of the diaphragm
c – lumbocostal triangle
d – sternocostal triangle

Answers: all answers.

004 (Splanchnology. Endocrine glands. Immune system organs). Choose one or more answers
Specify the part of the duodenum into which the bile duct and pancreatic duct open and the major duodenal papilla is located.
a - ascending part
b – descending part

c – superior part
d – horizontal part

Answer: descending part

005 (Cardiovascular system. Immune organs and lymph outflow pathways). Choose one or more answers
Choose the vessels of the greater circle of blood circulation.
a – pulmonary trunk
b – pulmonary veins
c – aorta
d – venae cavae

Answers: aorta, venae cavae

006 (Neurology. Topography of vessels and nerves in parts of the human body). Choose one or more answers
Specify the projection of the location of the upper border of the spinal cord.
a - body of the first cervical vertebra
b – lower edge of foramen magnum
c – decussation of the pyramids of the medulla oblongata
d – exit of the roots of the first pair of spinal nerves

Answers: lower edge of foramen magnum, decussation of the pyramids of the medulla oblongata, exit of the roots of the first pair of spinal nerves

007 (Neurology. Topography of vessels and nerves in parts of the human body). Choose one or more answers
Specify the structures related to the peripheral nervous system.
a – cranial nerves
b – spinal nerves
c – somatic plexuses
d – sensitive ganglia of spinal nerves

Answers: all answers.

008 (Neurology. Topography of vessels and nerves in parts of the human body). Choose one or more answers
Mark the muscles that the axillary nerve innervates.
a – anterior scalenus
b – deltoid muscle
c – pectoralis minor
d – pectoralis major

Answer: deltoid muscle

009 (Sense organs). Choose one or more answers
What structures produce humor aquosus?
a – retinal pigment epithelium
b – corneal squamous epithelium
c – epithelium covering the ciliary body and its processes
d – iridial epithelium

Answer: epithelium covering the ciliary body and its processes

4.2. Test №2 (*Preparations control*) for the assessment of competence "GPC-5" *:*

Preparations control «BONES"

1. Intervertebral foramen
2. Anterior arch of the atlas
3. Inferior articular facet of the thoracic vertebrae
4. Superior costal facet
5. Auricular surface of the sacrum
6. Angle of the sternum
7. Groove for ulnar nerve of the humerus
8. Articular circumference of the ulna
9. Scaphoid
10. Ischial spine
11. Infra-orbital canal
12. Nasal crest
13. Middle nasal concha
14. Pterygoid fossa of the sphenoid
15. Groove for inferior petrosal sinus of the temporal bone

Preparations control «JOINTS»

1. Anulus fibrosus of the intervertebral disc
2. Joint of head of rib
3. Superior thoracic aperture; thoracic inlet
4. Sphenomandibular ligament
5. Posterior atlanto-occipital membrane
6. Coraco-acromial ligament

7. Glenoid labrum
8. Radial collateral ligament of the elbow joint
9. Midcarpal joint
10. Palmar radiocarpal ligament
11. Subpubic angle
12. Sacrotuberous ligament
13. Zona orbicularis of the hip joint
14. Transverse ligament of knee
15. Calcaneocuboid joint

Preparations control «Muscles»

1. Trapezius muscle (m.)
2. Pectoralis major m.
3. Lateral arcuate ligament of the diaphragm
4. External oblique m.
5. Inguinal ligament
6. Pubic region
7. Sternocleidomastoid m.
8. Rectus capitis anterior m.
9. Frontal belly of the occipitofrontalis m.
10. Tensor fasciae latae m.
11. Sartorius m.
12. Adductor longus m.
13. Tibialis anterior m.
14. Soleus m.
15. Flexor hallucis longus m.

Preparations control «Splanchnology»

1. Superior nasal meatus
2. Semilunar hiatus
3. Superior horn of thyroid cartilage
4. Cricotracheal ligament
5. Membranous wall of trachea
6. Left main bronchus (description)
7. Horizontal fissure of lung
8. Apical segment [S I] (Right lung, superior lobe)
9. Pulmonary artery (right lung)
10. Renal sinus
11. Abdominal part of ureter
12. Body of bladder
13. Medial umbilical fold
14. Intermediate part of urethra; Membranous urethra
15. Mesovarium

Preparations control «Cardiovascular system»

1. Tricuspid valve
2. Left atrium
3. Left coronary artery
4. Left common carotid artery
5. Posterior intercostal arteries
6. Gastroduodenal artery
7. Internal iliac artery
8. Popliteal artery
9. Posterior tibial artery
10. Right brachiocephalic vein
11. Radial artery
12. Hepatic veins
13. Great [Long] saphenous vein
14. Palatine tonsil
15. Hilum lienale

Preparations control «Neurology»
(«central part»)

1. Lumbosacral enlargement of the spinal cord

2. Tegmentum of pons (transverse section)
3. Medial eminence of the floor of the fourth ventricle
4. Hypoglossal trigone; Trigone of hypoglossal nerve
5. Lateral geniculate body
6. Hypothalamic sulcus
7. Lateral sulcus
8. Inferior frontal sulcus
9. Middle frontal gyrus
10. Olfactory tract
11. Genu of the corpus callosum
12. Bulb of occipital horn
13. Dura mater of the spinal cord
14. Falx cerebelli; Cerebellar falx
15. Diaphragma sellae; Sellar diaphragm

Preparations control «Neurology»
(«peripheral part»)

1. Optic nerve [II] (Intracranial part)
2. Foramen rotundum
3. Mental nerve
4. Facial nerve [VII] (Cervical branch)
5. Glossopharyngeal nerve [IX] (Pharyngeal branches)
6. Vagus nerve [X] (Abdominal part)
7. Cranial nucleus of accesori nerve
8. Lesser splanchnic nerve
9. Ciliary ganglion
10. Ulnar nerve (forearm)
11. Obturator nerve
12. Pudendal nerve
13. Sciatic nerve
14. Sural nerve
15. Medial plantar nerve

Preparations control «Sense organs»

1. Lateral geniculate body
2. Column of fornix
3. Optic tract
4. Superior temporal gyrus
5. Anterior commissure
6. Genu of internal capsule
7. Choroid
8. Iris
9. Retina
10. Lacrimal bone
11. Anterior ethmoidal foramen
12. Superior orbital fissure
13. Lacrimal gland
14. Helix
15. Foliate papillae

4.3. Questions for Control works for the assessment of competence "GPC-5" *:*

Questions for Control works for the section “Locomotor apparatus” (bones)

1. Which bones compose the pelvic girdle and free lower limbs?
2. What parts of the sphenoidal bone? Make schemes.
3. Represent main structures of the hip bone.
4. Explain peculiarities of the femur. Draw pictures.
5. Note features of the tibia and fibula. Make schemes.
6. How many bones does the foot contain?
7. What bones of the brain box do you know? Which bones do they connect with?
8. Represent main structures of the occipital bone. Create schemes of it.
9. Explain peculiarities of the frontal bone. Draw pictures.
10. Note features of the ethmoidal bone. Name angles and borders of the parietal bone.

Questions for Control works for the section “Locomotor apparatus” (joints)

11. Represent type of joints.

12. Classify synovial joints according to construction, shapes of articular surfaces, axes of movements.
13. Give examples of types of joints (synarthroses, symphysis, diarthroses) of the vertebral column, thoracic cage, pelvis, joints of upper and lower limbs, cranial bones.
14. Define movements in large synovial joints of upper and lower limbs.
15. Signify distances, diameters and conjugates of the lesser pelvis and greater pelvis.
16. Describe main and additional elements of synovial joints.
17. Compare male pelvis and female pelvis.
18. Describe the vertebral column as a whole.
19. Describe the thoracic cage as a whole.

Questions for Control works for the section "Locomotor apparatus" (muscles)

20. Classify muscles according to shape, construction, function. Give examples.
21. Make the classification of muscles according to development.
22. Recognize superficial muscles of the back.
23. Denote deep muscles of the back, suboccipital muscles.
24. Classify the muscles of the breast (thoracic cage) according to development and location.
25. Describe the diaphragm, parts, topography, construction, function, foramina, contents.
26. Describe the muscles of the anterior and posterior abdominal walls (topography, construction, function).
27. Define weak places of the anterior and posterior abdominal walls, diaphragm.
28. Describe topography of the axillary cavity, triangles and spaces of walls of the axillary cavity.
29. Denote fasciae and compartments, grooves, canals of the upper limbs.
30. Name the muscles of the leg: the anterior group (extensors of the foot and fingers); the posterior group (flexors of the leg, foot and fingers); the lateral group (flexors of the foot).

Questions for Control works for the section "Splanchnology"

1. List the paired and unpaired cartilages of the larynx. Describe the construction of cartilages.
2. What connection between laryngeal cartilages and ligaments do you know?
3. List the muscles that narrow the rima glottidis.
4. Name the muscles that widen the rima glottidis. Write the muscles that change the state of the vocal folds.
5. The subdivision of the laryngeal cavity; the vestibular and vocal folds; the conus elasticus (cricovocal membrane); the rima glottidis, laryngeal ventricle.
6. To draw the schemes of the frontal and sagittal sections of the larynx.
7. To draw the scheme of the conus elasticus.
8. Describe the trachea, main bronchi; topography, construction, function.
9. The bronchial tree, subdivision of the bronchial tree (lobar, segmental bronchi); the scheme of the bronchial tree (Weibel's scheme). The hilum and root of lungs.
10. Name segments (segmental bronchi) of the right lung, left lung.

Questions for Control works for the section "Cardiovascular system"

1. To find the peculiarities of branching of the femoral artery and the brachial artery.
2. To describe the inferior vena cava, forming, topography, visceral veins and parietal veins.
3. To recognise the superficial and deep veins of the lower extremity, topography.
4. To describe the common, internal and external iliac veins, their sources.
5. To describe the superficial and deep veins of the upper extremity, topography.
6. To find the intercostal veins, azygos vein and hemi-azygos vein.
7. To describe the hepatic portal vein, its topography and sources.
8 To describe the peculiarities of the venous outflow from the internal organs.
9. To draw and describe the blood supply of the fetus (fetal circle).
10. To describe the lymphatic capillaries, lymphatic vessels, lymphatic trunks and ducts.

Questions for Control works for the section "Neurology"

1. Principles of the nervous system construction and organization.
2. Evolution and development of the nervous system.
3. General data about the nervous tissue, structural elements of the nervous system (neuron, nervous fibres, receptor, synapse).
4. A notion of the reflex. Reflex arch as a basic anatomical and physiological unit of the nervous system. Simple and avoidance reflex arches.
5. The spinal cord, its form, topography, cervical and lumbosacral enlargements.
6. The segment of the spinal cord. Topography of the grey matter and white matter of the spinal cord.
7. The anterior and posterior roots of the spinal nerves, spinal ganglions.
8. The choroid plexus and choroid membrane of the forth ventricle.
9. The anatomy and topography of the brain stem, its parts.

10. The topography of the cranial nerves: exits from the brain and exits through the skull openings.

Questions for Control works for the section "Sense organs"

1. To find special features of the cochlea and spiral organ.
2. Describe construction of the external ear. Peculiarities of the external acoustic meatus and tympanic membrane.
3. To draw the scheme of sound conduction.
4. Explain the anatomy and topography of the middle ear; connections with the nasopharynx.
5. Explain the clinic aspects of the topography of the middle ear, walls of the tympanic cavity.
6. Describe the receptor field of the vestibular (gravitation and balance) analyzer.
7. Draw the scheme of the vestibular (gravitation and balance) analyzer.
8. Describe the vestibulocochlear organ, parts, topography. Bony and membranous labyrinths.
9. The receptor field of the hearing (auditory) analyzer.
10. To draw the scheme of the hearing (auditory) analyzer.

5. The content of the assessment tools of mid-term assessment

Mid-term assessment is carried out in the form of an exam.

The bank of assessment tools for conducting current control and mid-term assessment of students in this discipline is presented on the Educational Portal of the PRMU, a link to this electronic resource:

Test №2 (Preparations control) for an exam
https://sdo.pimunn.net/mod/resource/view.php?id=5251

Questions for Interview for an exam
https://sdo.pimunn.net/mod/resource/view.php?id=5249

5.1 The list of control tasks and other materials necessary for the assessment of knowledge, skills and work experience *(Test №1 (Computer testing), Test №2 (Preparations control), Interview)*

5.1.1. ***Test №1 (Computer testing) with answers for the assessment of competence "GPC-5" :***

1. Where is the outflow of humor aquosus from the anterior chamber of the eye.
a – venous sinus of the sclera
b – veins of the iris
c – episcleral space
d – lacrimal sac
2. Indicate which cranial nerves pass through the superior orbital fissure.
a – optic nerve
b – ophthalmic nerve
c – trochlear nerve
d – abducent nerve
3. Specify the organs from which venous blood flows into the hepatic portal vein.
a – pancreas
b – spleen
c – small intestine
d – stomach
4. Specify the ovarian ligaments.
a – longitudinal ligament of the ovary
b – mesovarium
c – suspensory ligament the ovary
d – ligament of the ovary
5. Specify the paired cartilages of the larynx.
a – arytenoid cartilage
b – cricoid cartilage
c – cuneiform cartilage
d – corniculate cartilage

№ ***Computer testing***	№ answers	№ ***Computer testing***	№ answers	№ ***Computer testing***	№ answers
1	a	3	a b c d	5	a c d
2	b c d	4	c d		

5.1.2. *Test №2 (Preparations control) for an exam for the assessment of competence "GPC-5":*

EXAM TEST

1. Sella turcica.
2. Posterior cruciate ligament.
3. Infraspinatus.
4. Peroneus brevis.
5. Superficial inguinal ring.
6. Omental foramen.
7. Thyroid cartilage.
8. Major calices.
9. Right coronary artery.
10. Profunda brachii artery.
11. Superior vena cava.
12. Pyramid of medulla oblongata.
13. Superior parietal lobule.
14. Posterior chamber (eyeball).
15. Maxillary nerve.

5.1.3. *Interview for an exam for the assessment of competence "GPC-5":*

EXAM questions

The general theoretical questions.

l. The subject and content of anatomy. History.
2. Structural organization of the human body: tissue, organ, system of organs. Constitutions.
3. Parts and regions of human body. Anatomical terminology. Axes, planes.

The anatomy of the locomotor system.

l. The bone as the organ; development. The classification of bones. Construction of the long bone. Diaphysis. Epiphysis. Metaphysis. Periosteum and endosteum. Compact (lamellar) bone. Spongy bone.
2. The vertebrae of the different departments of the vertebral column (cervical, thoracic, lumbar, sacral and coccygeal). The development of the vertebrae. The anomalies. Applied anatomy of the vertebral column.
3. The junctions between vertebrae. The atlanto-occipital joint. Movements in this joint.
4. The vertebral column as a whole: structure, bends, movements. The anomalies of the vertebral column.
5. The ribs and the sternum: structure. The junctions of the ribs with the vertebrae and the sternum. The thoracic cage as a whole, its individual and typological peculiarities, movements of the ribs. Applied anatomy.
6. The development of the skull (cranial base and calvaria). The branchial arches.
7. The bones of the cranium: frontal, occipital, parietal, ethmoidal. The orbit, the structure of walls, openings, their contents.
8. The temporal bone, its parts, openings, canals and their contents.
9. The sphenoidal bone, its parts, openings and their contents.
10. The maxilla, its parts, openings and their contents. Development..
11. The mandible, its parts, openings and their contents. Development..
12. The skull of newborns. The age, genital, typological peculiarities of the skull.
15. The pterygopatatine fossa, temporal fossa and the infratemporal fossa, topography, walls, openings and contents.
16. The bony nasal cavity, walls, openings. The paranasal sinuses.
17. The internal surface of the cranial base, the openings and contents.
18. The external surface of the cranial base, the openings, contents.
19. The classification of the bones connections (synarthroses, symphyses, diarthroses). Peculiarities.
20. The structure of the synovial joint (diarthrosis). The classification of the joints (shape of the articular surfaces, number of the axes, construction and organization). The volume of the movements in the joints.
21. The articulation of the bones of the skull. The sutures. The temporomandibular joint; the structure, the shape, the muscles, which do movement on this joint, their vascularisation and innervation.
22. The bones of the free part of the upper limb.
23. The bones and the junctions of the pectoral (shoulder girdle).
24. The shoulder joint; the structure, shape, the biomechanics.
25. The elbow joint, the peculiarities of its structure.
26. The joints of the hand; the structure, shape, the movement.
27. The bones of the free part of the lower limb.
28. The bones of the pelvic girdle and their junctions. The pelvis as a whole. The sizes of the female pelvis. The difference between male pelvis and female pelvis.
29. The hip joint; the structure, shape, the movements.
30. The knee joint, the structure, shape, the movements.
31. The ankle joint; the structure, shape, the movements.
32. The joints of the foot; the structure, shape, the movements. Passive and active parts of the feet arches.
33. The general anatomy of the muscles; the structure of muscles as a organ, their classification by the form, the structure, the situation etc. The anatomical and physiological diameter of muscles.
34. The auxiliary apparatus of muscles: classification, fasciae, synovial sheaths, synovial bursae, sesamoid bones, ect. The antagonistic and synergistic muscles.
35. The muscles and fasciae of the chest, topography, points of attachments, functions, blood supply and innervation.
36. The muscles and fasciae of the back, topography, points of attachments, functions, blood supply and innervation.
37. The anatomy of the muscles of the abdomen, topography, points of attachments, functions, blood supply and innervation. The rectus sheath. The linea alba.
38. The inguinal canal, its walls, construction. The superficial and deep inguinal rings, the contents of the canal.
39. The diaphragm, parts, topography, functions. The blood supply and innervation. Development of the diaphragm.

40. The muscles of the neck, points of attachments, functions, blood supply and innervation. Topography of the muscles of the neck and fasciae; spaces of the neck.
41. The facial (mimetic) muscles, topography, points of attachments, functions, blood supply and innervation.
42. The masticatory muscles, topography, points of attachments, functions, blood supply and innervation.
43. The muscles and the fasciae of the shoulder (pectoral) girdle, topography, points of attachments, functions, blood supply and innervation.
44. The muscles and the fasciae of the arm: topography, points of attachments, functions, blood supply and innervation.
45. The muscles and the fasciae of the forearm: topography, points of attachments, functions, blood supply and innervation.
46. The muscles of the hand, topography, points of attachments, functions, blood supply and innervation. The canals and synovial sheaths of the hand.
47. The axillary fossa, its walls, openings and their contents. The canal of the radial nerve.
48. The topography of the upper limb.
49. The muscles and the fasciae of the hip girdle: topography, points of attachments, functions, blood supply and innervation.
50. The muscles and fasciae of the anterior compartment of the thigh: topography, points of attachments, functions, blood supply and innervation.
51. The femoral canal, its walls and rings.
52. The muscles and fasciae of the medial and posterior compartments of the thigh: topography, points of attachments, functions, blood supply and innervation.
53. The muscles and the fasciae of the leg and the foot. Topography, points of attachments, functions, blood supply and innervation.
54. Topography of the lower limb.

The anatomy of the inner organs.
1. General characteristic of the internal organs. Peculiarities of walls of the tube.
2. The oral cavity: the lips, oral vestibule, oral cavity proper, hard palate and soft palate. The structure, blood supply and innervation. Ontogenesis.
3. The deciduous and permanent teeth, their structure, their formula, the blood supply, innervation, lymphatic outflow.
4. The tongue, structure, functions, blood supply and innervation. Ontogenesis. The taste analyzer.
5. Salivary glands. The sublingual, submandibular and parotid glands; structure, the ducts of the glands, the blood supply and innervation.
6. The pharynx, its structure, blood supply and innervation. The lymph ring of the pharynx (Pirogov's ring).
7. The oesophagus; topography, the structure, blood supply and innervation.
8. The stomach; the structure, topography, blood supply and innervation.
9. The small intestine; the parts, the structure, topography. The relationship with the peritoneum, blood supply and innervation.
10. The duodenum; the parts, the structure, topography, the relationship with the peritoneum, the blood supply and innervation.
11. The large intestine; its parts, topography, relationship with the peritoneum, the structure, the blood supply and innervation.
12. The caecum: the structure, relation to the peritoneum, topography of the vermiform appendix, the blood supply and innervation. The vermiform appendix as an organ
13. The rectum; topography, relation to the peritoneum, the structure of the wall, the blood supply and innervation.
14. Ontogenesis of the digestive tube.
15. The liver; the structure, topography, the blood supply and innervation.The gall bladder, the ducts of the gall bladder and the liver, the blood supply and innervation.
16. The pancreas; topography, the structure of the ducts of the pancreas, the blood supply and innervation.
17. The peritoneum, topography of the peritoneum at the upper storey (part) of the peritoneal cavity. The lesser omentum, the omental bursa (lesser sac), the hepatic bursa, the pregastric bursa, their walls, recesses.
18. The peritoneum, topography of the peritoneum at the middle storey (part) of the peritoneal cavity and the lower storey.
19. The external nose. The nasal cavity. The olfactory and respiratory regions. The blood supply and innervation of the nasal mucosa.
20. The larynx. The cartilages of the larynx, the junctions. The elastic cone of the larynx. The muscles of the larynx, their classification, functions. The innervation and blood supply.
21. The trachea, the bronchi. Their structure, blood supply and innervation.
22. The lungs: the topography. The segments of the lungs. The anatomy and topography of roots of the right and left lungs. The blood supply and innervation.
23. Development of the respiratory system.
24. The pleura; the parts, the pleural cavity, topography, the pleural recesses.
25. The mediastinum; the parts, the organs of the mediastinum, topography.
26. The projections of the lungs and pleura. The topography.
27. The kidneys, the structure (construction), the blood supply and innervation. Topography of kidneys, coverings. The excretory tree of the kidneys, fornical apparatus, minor calices, major calices, renal pelvis.
28. Development of the urinary system.
29. The ureter, the urinary bladder; the structures, the topography, the blood supply and innervation. The urethra, sex features.
30. The testis, the epidydimis, structure, blood supply and innervation. The process of the descending of the testis. The coats of the testis.
31. The prostate, the seminal vesicles. Their structure, function. The blood supply and innervation.
32. The spermatic cord, its parts. The male external genital organs, their parts and anatomy.
33. The ovary; the topography, the structure, the relation to the peritoneum. The blood supply and innervation.
34. The uterus; the parts, the topography, the ligaments, relationship to peritoneum. The blood supply and innervation. The uterine tube: the structure, relationship to the peritoneum, the blood supply and innervation.
35. The muscles and fasciae of the male perineum and female perineum. The topography, points of attachments, functions, blood supply and innervation.
36. The anatomy of the peritoneum in the male pelvis and female pelvis. Relationship to the rectum, the urinary bladder, the uterus and other organs.
37. Development of the genital organs.

The anatomy of the blood and lymphatic vessels, the organs of immune system.
1. The general anatomy of the blood vessels. The large vessels, extraorganal and intraorganal vessels. Characteristics of the microcirculation.
2. The anastomoses of veins. The cava-cava venous anastomoses (between the superior vena cava and inferior vena cava). The portal-cava venous anastomoses (between the superior vena cava and hepatic portal vein, the inferior vena cava and hepatic portal vein).
3. The peculiarities of vascularisation of the embryo, fetus and its changes after the birth.
4. The heart: development, anomalies, topography, the projection of the borders and the valves of the heart on the anterior surface, the structure of the valves.
5. The heart, the structure (construction) of the wall. Peculiarities of the myocardium of atria and ventricles. The conducting system of the heart.
6. The general organization of the heart. Characteristics of the chambers of the heart.
7. The blood supply and innervation of the heart. The scheme of the vegetative innervation of the heart.
8. The pericardium, construction, topography, sinuses.
9. The vessels of the lesser circle. The peculiarities of their distribution in the lungs.
10. The aorta, departments. The branches of the aortic arch and thoracic aorta (parietal and visceral).
11. The parietal, visceral (paired and unpaired) branches of the abdominal aorta.
12. The common, external and internal iliac artery, topography, branches and supplying regions.
13. The external carotid artery, topography, the branches and supplying regions.
14. The internal carotid artery, topography, the branches and supplying regions. The blood supply of the brain.

15. The subclavian artery; topography, the branches and supplying regions.
16. The axillary and brachial arteries. Topography, branches and supplying regions. The blood supply of the shoulder joint.
17. The arteries of the forearm: topography, the branches and supplying regions. The blood supply of the elbow joint.
18. The arteries of the hand. The arterial palmar arches and their branches.
19. The femoral artery: topography, the branches and supplying regions.
20. The popliteal artery, its branches. The blood supply of the knee joint.
21. The arteries of the leg, the branches and supplying regions. The blood supply of the ankle joint.
22. The arteries of the foot, topography, the branches and supplying regions.
23. The superior vena cava, tributaries (sources), topography. The azygos and hemi-azygos veins and their anastomoses.
24. The brachiocephalic veins, tributaries (sources), topography. The venous outflow from the head, the neck and the upper limb.
25. The inferior vena cava, tributaries (sources), topography. Anastomoses.
26. The hepatic portal vein, tributaries (sources), topography. The branches of the hepatic portal vein in the liver. Anastomoses of the hepatic portal vein.
27. The cerebral veins. The orbital veins. The emissary veins and diploic veins. The dural venous sinuses. Anastomoses.
28. The superficial and deep veins of the upper and lower limbs. Topography.
29. Development of the arteries of the head and neck. The branchial arches.
30. The principles of the structure of the lymphatic system (capillaries, vessels, trunks and ducts), the ways of lymph circulation.
31. The thoracic duct, formation, structure (construction), topography, place of the confluence into the venous system.
32. The lymph node like an organ (structure, function). The classification of the lymph nodes.
33. The lymphatic vessels and regional lymph nodes of the head and neck.
34. The lymphatic vessels and regional lymph nodes of the upper extremity.
35. The lymphatic vessels and regional lymph nodes of the lower limb.
36. The lymphatic vessels and nodes of the mammary glands, the regional lymph nodes.
37. The lymphatic vessels of the lungs and the lymph nodes of the thoracic cavity.
38. The lymphatic vessels and lymph nodes of the abdominal cavity.
39. The lymphatic vessels and regional lymph nodes of the pelvis.
40. The organs of the immune system, the classification. The central and peripheral organs of the immune system.
41. The spleen; development, structure (construction), topography, blood supply, innervation.

The anatomy of central nervous system.
1. The classification of the nervous system. Development of the nervous system (principles of ontogenesis and phylogenesis).
2. The notion about the neuron; classification. The nervous fibres, fascicles, roots, and s ganglia. The simple, avoidance and complex reflex arches.
3. The spinal cord: the segments, structure (construction), external features, internal features.
4. The development of brain: brain bladders and their derivates.
5. The grey matter of the cerebral hemispheres (the basal ganglia, cortex).
6. The sulci and the gyri of the medial and basal surfaces of the cerebral hemispheres.
7. The sulci and gyri of the superolateral surface of the cerebral hemispheres.
8. The classification of the white matter. The association system of the fibres of the white matter. The commissural and projection fibres of the hemispheres of the brain (the corpus callosum, the fornix, the commissures, the internal capsule).
9. The lateral ventricles, parts, walls. The third ventricle, walls.
10. The diencephalon, parts, external features, internal features.
11. The midbrain (mesencephalon), parts; external features, internal features. The topography of the nuclei of the cranial nerves.
12. The metencephalon, parts, external features, internal features. The topography of the nuclei of the cranial nerves.
13. The cerebellum, parts, external features, internal features (the cerebellar nuclei, the cerebellar peduncles).
14. The medulla oblongata, external features, internal features. The topography of the nuclei of the cranial nerves.
15. The rhomboid fossa, its relief, the projection of nuclei of the cranial nerves.
16. The fourth ventricle, walls, circulation of the cerebrospinal fluid.
17. The conducting pathways of the exteroceptive sensibility (pain and temperature, touch (tactile)).
18. The conducting pathways of the proprioceptive sensibility (to the cerebellum and to the telencephalon).
19. The motor conducting pyramidal and extrapyramidal pathways.
20. The meninges of the brain and spinal cord, the spaces.
21. The telencephalon, cortex. Centres of the first and second signal systems.

The anatomy of the peripheral part of the nervous system and endocrine organs.
1. The spinal nerve and its branches. Forming of the plexus of spinal nerves. The posterior branches of the spinal nerves and regions of their distribution.
2. The cervical plexus, topography, branches, regions of innervation.
3. The brachial plexus, topography, branches, regions of innervation.
4. The lumbar plexus; topography, the branches and regions of innervation.
5. The sacral plexus, topography, the branches and regions of innervation. Short branches.
6. The sciatic nerve, topography, the branches and regions of innervation. The innervation of the skin of the lower limb.
7. The I and II pairs of the cranial nerves. The conducting pathway of the visual analyser, smell analyser.
8. The III, IV, VI pairs of the cranial nerves, the regions of innervation. The pathways of the pupillary reflex and accommodation.
9. The trigeminal nerve (V pair of the cranial nerves), the branches, topography and regions of innervation.
10. The ophthalmic nerve, the branches, topography and regions of innervation.
11. The maxillary nerve, the branches, topography and regions of innervation.
12. The mandibular nerve, the branches, topography and regions of innervation.
13. The facial nerve, topography, the branches and regions of innervation.
14. The vestibulocochlear nerve (VIII pair of the cranial nerves), topography of the nuclei. The conducting pathways of the vestibular analyzer.
15. The vagus nerve, the topography of the nuclei, the branches and regions of the innervation.
16. The glossopharyngeal nerve (IX pair of the cranial nerves), the nuclei, the topography, the branches and regions of innervation.
17. The accessory nerve (XI) and hypoglossal nerve (XII), the nuclei, topography, branches and regions of innervation.
18. The autonomic division (part) of the nervous system, its parts, the characteristics of the parts.
19. The parasympathetic part of the autonomic division of the nervous system. The general characteristic, the ganglions, roots, the distribution of the branches, the cranial and pelvic parts.
20. The sympathetic part of the autonomic division of the nervous system. The general characteristics of the sympathetic trunk (the cervical part, the thoracic part, the lumbar and sacral part).
21. The endocrine organs. The characteristics, principles of organisation, functions. The classification. Development.
22. The thyroid gland. The structure, the function, the topography. The blood supply of the organ.
23. The suprarenal glands (the structure, function, topography, blood supply of the gland).
24. The hypophysis, epiphysis (topography, structure (construction), blood supply, innervation).

The anatomy of the sensory organs.

1. The external ear, its parts, structure (construction), blood supply, innervation. Development.
2. The anatomy of the middle ear (the tympanic cavity, the auditory ossicles, the auditory (pharyngotympanic) tube, the mastoid antrum and cells). The blood supply and innervation. Development.
3. The internal ear; the bony and the membranous labyrinths. The spiral organ. The conducting pathway of the auditory analyser.
4. The organ of vision; the general plan of the structure, the fibrous coat, the vascular coat of the eyeball, its parts. The mechanism of the accommodation. The retina. Development.
5. The refraction environments (surroundings) of the eyeball (the cornea, the aqueous humour of the chambers, the lens, the vitreous body).
6. The accessory visual structures; the extra-ocular muscles, eyebrow, eyelids, conjunctiva, the lacrimal apparatus, their blood supply, innervation.
7. The anatomy of the skin and of its derivatives. The mammary gland; the topography, the structure, the vascularisation and innervation. The transport of the lymph.

6. Criteria for evaluating learning outcomes

For the exam

Learning outcomes	**Assessment of competence developed**			
	unsatisfactory	**satisfactory**	**good**	**excellent**
Completeness of knowledge	The level of knowledge is below the minimum requirements. There were bad mistakes	The minimum acceptable level of knowledge. A lot of light mistakes were made	The level of knowledge in the volume corresponding to the training program. A few light mistakes were made	The level of knowledge in the volume corresponding to the training program, without errors
Availability of skills	Basic skills are not demonstrated when solving standard tasks. There were bad mistakes	Basic skills are demonstrated. Typical problems with light mistakes have been solved. All tasks have been completed, but not in full.	All basic skills are demonstrated. All the main tasks have been solved with light mistakes. All tasks have been completed, in full, but some of them with shortcomings	All the basic skills were demonstrated, all the main tasks were solved with some minor shortcomings, all the tasks were completed in full
Availability of skills (possession of experience)	Basic skills are not demonstrated when solving standard tasks. There were bad mistakes	There is a minimal set of skills for solving standard tasks with some shortcomings	Basic skills in solving standard tasks with some shortcomings are demonstrated	Skills in solving non-standard tasks without mistakes and shortcomings are demonstrated
Characteristics of competence formation*	The competence is not fully formed. The available knowledge and skills are not enough to solve professional tasks. Repeated training is required	The formation of competence meets the minimum requirements. The available knowledge and abilities are generally sufficient to solve professional tasks, but additional	The formation of competence generally meets the requirements, but there are shortcomings. The available knowledge, skills and motivation are generally sufficient to	The formation of competence fully meets the requirements. The available knowledge, skills and motivation are fully sufficient to solve complex professional tasks

Learning outcomes	Assessment of competence developed			
	unsatisfactory	**satisfactory**	**good**	**excellent**
		practice is required for most practical tasks	solve professional tasks, but additional practice is required for some professional tasks	
The level of competence formation*	Low	Below average	Intermediate	High

For testing:

Mark "5" (Excellent) - points (100-90%)
Mark"4" (Good) - points (89-80%)
Mark "3" (Satisfactory) - points (79-70%)

Less than 70% – Unsatisfactory – Mark "2"

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