

Документ подписан простой электронной подписью  
Информация о владельце:  
ФИО: Косенок Сергей Михайлович  
Должность: ректор  
Дата подписания: 18.07.2025 08:19:55  
Уникальный программный ключ:  
e5a80f5eaa1e02674b54f4998099d3d6bfdcf836

## ASSESSMENT TOOLS

### HISTOLOGY, CYTOLOGY, EMBRYOLOGY

Qualification	Specialist
Specialty	31.05.01 General Medicine
Form of education	Full-time
Designer Department	Department of Pathophysiology and General Pathology
Graduate Department	Internal Diseases

#### Sample tasks and tests

##### 1. Essay assessment

Writing an essay involves an in-depth study of a topic.

An essay is an academic paper that outlines the goals, objectives, and conclusions related to the main aspects of a chosen subject.

The topics of essays are presented in the assessment tools and in the teaching aids for self-study for residents enrolled in the relevant program.

Essays are presented in class according to the selected topic and the syllabus schedule, and must be submitted to the teacher by the specified deadline.

The summarized information should be logically integrated into the text.

##### Structure of the Essay

**The essay consists of three parts: introduction, main body, and conclusion.**

##### a) Introduction

The introduction should include:

Relevance of the topic (why this topic was chosen and its connection to modern science);

Goal (aligned with the essay topic);

Objectives (methods to achieve the goal), reflected in the section headings.

##### b) Main Body

This section provides a comprehensive analysis of the topic, followed by a concise presentation of information in line with the stated objectives. Each chapter should end with a summary (e.g., "Thus...", "In conclusion...", "To summarize...").

##### c) Conclusion

The conclusion (1–1.5 pages) should summarize the key findings and may include the author's perspective on the issue.

##### Additional Requirements

The essay may be submitted as a presentation, but all standard essay requirements apply, including proper reference formatting.

The topic must be supported by 8–10 scholarly sources (e.g., peer-reviewed articles, monographs, textbooks). Preference is given to publications in specialized journals and works by recognized experts in the field.

##### List of essay topics:

1. Reactive mitochondrial alterations in cellular pathology
2. Structural and functional organization of the nuclear apparatus: biological significance
3. Biomembrane transport mechanisms: ethanol-induced permeability changes
4. Molecular regulation of cell division: subcellular and supracellular control mechanisms

5. Cytomorphological features of parenchymal cell populations in adult mammalian organs
6. Nucleocytoplasmic interactions in age-related cytological transformations
7. Cross-talk between mitotic and meiotic regulatory pathways
8. Aberrant mitosis: pathophysiological implications for cellular function
9. Karyocytometric analysis: quantitative approaches in cellular morphology
10. Tissue-specific specialization of connective tissue matrices
11. Phenotypic characterization of connective tissue cells in sterile inflammation
12. Connective tissue remodeling in wound repair: molecular mechanisms and therapeutic implications
13. Regenerative capacity of tendon tissue: physiological vs. reparative processes
14. Macrophage heterogeneity: ontogeny, functional specialization, and tissue distribution
15. Ultrastructural organization of cartilage extracellular matrix: EM findings
16. Sarcomere ultrastructure and contractile mechanisms in striated muscle
17. Membrane digestion: structural and functional aspects
18. Pancreatic islet cell biology: ultrastructural features and endocrine integration
19. Biliary tract histophysiology: from cholangiocytes to gallbladder mucosa
20. Hepatocyte ontogeny: developmental changes in structure and regenerative potential
21. Sinusoidal endothelial cell ultrastructure: specialized features of hepatic vasculature
22. Fundamental principles of embryonic development
23. Critical events in early human embryogenesis
24. Histodifferentiation and organogenesis in human embryos

### **Midterm assessment (examination) (3<sup>rd</sup> term)**

#### **Methodological guidelines for midterm assessment (examination)**

**The midterm assessment is carried out in the form of an exam. The exam assignments contain 3 theoretical questions and 2 practical questions (description of microspecimens).**

#### **Provide detailed answers to the following theoretical questions of the discipline sections:**

1. Methods of microscopic examination of cells, tissues and organs. The main stages of histological preparation.
2. Cell. Plasma membrane, nucleus and cytoplasm. Characteristics of hyaloplasm and organelles, their classification, ultrastructure, functions. Cytoplasm inclusions.
3. Cytoplasmic organelles, hyaloplasm. Classification of organelles, functions. Ultrastructural characteristics of the plasma membrane, nucleus.
4. Morphological changes in cells during the life cycle. Stem cells. Methods of reproduction and regeneration of somatic cells. Morphology of an aging cell. Necrosis, apoptosis, their morphological and functional characteristics and distinctive features.
5. Reactive properties of cells, their significance. Concepts of compensation and decompensation at the cellular and subcellular levels. Sensitivity of cells to damaging factors depending on the degree of differentiation and functional activity.
6. Embryonic membranes, their development, structure and transformation in a number of vertebrates (fish, birds, mammals). The main mechanisms of embryogenesis regulation. The concept and examples of ooplasmic segregation, intercellular interaction, embryonic induction, neuroendocrine regulation.
7. Placentas of mammals. The principle of structure. Types of placentas by structure and trophic nature. Functions.
8. Ultrastructural characteristics of male and female human germ cells. Progenesis. Stages. Chronology of the process. Spermatogenesis and oogenesis.
9. Early human embryogenesis. Fertilization, cleavage, gastrulation.
10. Characteristics of the stages of human embryogenesis. Biological processes underlying the stages. Chronology of the processes. Implantation, features of gastrulation and formation of embryonic membranes, their structure and role in fetal development.
11. Human embryogenesis. General patterns and cenogenetic features of embryogenesis. Extraembryonic organs: formation, structure and functions.
12. Human placenta. Umbilical cord. Development, structure, functions. The mother-placenta

system and factors influencing its physiology.

13. Critical periods of human embryogenesis. The influence of damaging factors on the fetus.
14. Epithelia. Classifications (morphofunctional and histogenetic). Characteristics of epithelia. The role of glandular epithelium.
15. Glandular epithelium. Sources of development. Phases of the secretory cycle. Types of secretion. The concept of endocrine and exocrine glands. The concept of the stroma and parenchyma of glands. The principle of the structure of exocrine glands. Classification of exocrine glands. Features of the epithelial lining of the structures of glands of various origins. Possibilities of regeneration of the stroma and parenchyma.
16. Connective tissue. Classification. Cytophysiological characteristics of cells and intercellular substance. The concept of stroma. Cellular bases of the inflammatory response and wound healing process. Age-related changes.
17. Blood. Plasma and formed elements of the blood, their classification, characteristics and functions. The concept of the hemogram and leukocyte formula, their clinical significance.
18. Cytophysiology of blood leukocytes and their role in the body's defense reactions. The system of mononuclear phagocytes. Cellular bases of the inflammatory response and wound healing process.
19. Loose irregular fibrous connective tissue. Cytophysiological characteristics of cells and intercellular substance. The concept of stroma. Cellular bases of the inflammatory response and wound healing process. Age-related changes.
20. Connective tissues with specific properties. Structure, location in the body and functions. Regeneration. Development. Mesenchyme, its origin, structure, functions.
21. Cartilaginous tissue. Source of development. Principle of structure. Classification. Histophysiology of types of cartilaginous tissues and their distinctive features. Nutrition, growth, regeneration.
22. Bone tissues. Origin. Principle of structure. Classification. Histophysiology. Structure of tubular bone as an organ. Structure of compact and spongy bone substance. Nutrition. Regeneration.
23. Development of bone tissue. Direct and indirect osteogenesis.
24. Muscle tissues. Sources of development. Classification. Histophysiology of muscle tissues. Physiological and reparative regeneration.
25. Striated muscle tissue. Source of development. Histophysiology. Structure of myofibrils. Structural bases of muscle contraction. Regeneration.
26. Nervous tissue. Origin. Principle of structure. Morphofunctional characteristics of neurons and neuroglia. Blood-brain barrier. Regeneration of neurons and glia.
27. Nerve fibers. Structure and morphofunctional features of unmyelinated and myelinated nerve fibers. Regeneration. Structure of the peripheral nerve. Nerve endings in the epithelium, connective and muscle tissues. Synapses. Definition. Classification by structure and function.
28. Peripheral nervous system. Spinal ganglion. Nerve. Histophysiology. Regeneration. Autonomic nervous system.
29. Cerebellum. Structure and functions. Cyto- and myeloarchitectonics of the cerebellar cortex. Neuronal composition of afferent and efferent reflex arcs.
30. Cerebral cortex. Development. Cyto- and myeloarchitectonics of the cortex. Modular organization. Blood-brain barrier. Meninges.
31. Embryonic hematopoiesis. Sequence of replacement of hematopoietic organs. Features of hematopoiesis in each organ. The concept of myelopoiesis, myeloid tissue, lymphopoiesis, lymphoid tissue.
32. Characteristics of postembryonic hematopoiesis. General characteristics of compartments. Erythropoiesis. Stages. Regulation of erythropoiesis. Thrombopoiesis.
33. Hematopoiesis in red bone marrow. Granulocytopoiesis, monocytopenia, lymphopoiesis.
34. Red bone marrow. Development. Histophysiology. Interaction of stromal and hematopoietic elements. General characteristics of hematopoiesis compartments. Sensitivity of its elements to damaging factors. Age-related changes.
35. Thymus. Development. Histophysiology. Interaction of stromal and hematopoietic elements. Hematothymic barrier. Age-related and accidental involution. The role of the thymus in immunogenesis.
36. Spleen. Functions. Development. Histophysiology. Its hematopoietic function and participation in the body's protective immunological reactions. Features of the spleen's blood supply.

37. Lymph nodes. Histophysiology. Participation of lymph nodes in lymphopoiesis and protective reactions. Regeneration.
38. Structural bases of cellular and humoral immunity. Characteristics of immunocompetent cells and their interaction in the immune response.
39. Skin. Principle of structure. Sources of skin tissue development. Histophysiology of layers. Regeneration. Regional, age and gender features of the skin. Sweat glands of the skin. Location. Structure. Composition of secretion and type of secretion. Functions.
40. Derivatives of the skin. Hair. Development. Classification. Histophysiology. Growth, regeneration, replacement of hair. Sebaceous glands. Composition of secretion and type of secretion. Functions.
41. Respiratory system. Development. Morphofunctional characteristics of the airways. Trachea. Bronchi. Histophysiology. Regeneration.
42. Lung. Pleura. Histophysiology of the lung. Structure of the respiratory section - acinus, functions. Features of the interstitium. Air-blood barrier. Features of the blood supply to the lung. Airways. Classification. The principle of the wall structure and distinctive features of different sections of the airways.
43. Vessels of the microcirculatory bed. Classification. Histophysiology. Capillaries. Features of structure and function. Arteriovenular anastomoses. Regeneration.
44. Blood and lymphatic vessels. Classification. General principle of the vessel wall structure. The relationship between the structure of the walls of arteries, veins and hemodynamic conditions. Organ-specific features of arteries and veins.
45. Heart. Development. Wall structure, tissue composition of membranes. Regeneration. Conduction system of the heart.
46. Organs of the oral cavity. The principle of the structure of the oral mucosa. Tissue composition. Tongue. Histophysiology of the dorsal surface of the tongue. Regeneration.
47. Salivary glands. Sources of development. Histophysiology. Types and structure of secretory sections, intralobular and interlobular ducts. Features of the parotid, submandibular and sublingual glands. Regeneration and age-related features.
48. Teeth. Anatomical and histological structure of hard and soft parts of the tooth. Features of the tissue composition. Regenerative features of dental tissues. Age-related changes. Development of the tooth. Change of tooth generations, causes.
49. Pharynx and esophagus. Development. Histophysiology. Regeneration.
50. Stomach. Development. Histophysiological features of its various sections. Structure and cytochemical characteristics of glands in various sections of the stomach. Regeneration. Age-related features.
51. Intestine. Intestinal sections. Development. The principle of wall structure. Tissue and cellular composition of membranes. Morphofunctional features of the structure of the membranes of the small and large intestines. Regeneration, blood supply, innervation. Organs of intestinal immune defense. General morphofunctional characteristics and specific features. Age-related changes.
52. Pancreas. Development. Histophysiology of the exocrine and endocrine sections. Regeneration. Blood supply. Age-related changes.
53. Liver. Development. Functions. General principle of structure. Morphofunctional characteristics of liver lobules. The concept of a portal lobule and acinus, triad. Ultrastructure of hepatocytes and cells lining sinusoidal capillaries. The liver barrier, its role. Regeneration.
54. Structural bases of bile formation. Bile ducts. Gallbladder. Histophysiology. Regeneration.
55. Pituitary gland. Development. Histophysiology of the adeno- and neurohypophysis. Hypothalamic-pituitary connection. Regeneration. Age-related changes.
56. Thyroid and parathyroid glands. Sources of development. Histological structure of the thyroid and parathyroid glands. Vascularization. Functions of gland hormones in the regulation of general and mineral metabolism. Regulation of activity. Regeneration. Age-related changes and sensitivity to adverse factors.
57. Adrenal gland. Development. Functions. Histophysiology of the cortex and medulla. Regulation of hormone synthesis. Age-related changes.
58. Kidney. Development. Nephron structure. Histophysiology of the cortex and medulla. Stages and regulation of urine formation. Features of the blood supply to the cortical and juxtamedullary nephrons. Endocrine apparatus of the kidneys. Regeneration.
59. Urinary tract. Development. Ureters, bladder. Histophysiology. Regeneration.

60. Testicle. Development. Histophysiology. Reproductive function (spermatogenesis). Hematotesticular barrier. Endocrine functions. Regulation. Age-related changes.
61. Accessory glands of the male reproductive system. Structure. Prostate gland. Histophysiology of the secretory sections and excretory ducts. Features of the stroma. Exocrine and endocrine functions. Vas deferens. Principle of wall structure. Features of structure of departments and functions.
62. Ovary. Development. Histophysiology of cortex and medulla. Ovarian cycle. Development of corpus luteum. Regulation of their activity. Atresia of follicles. Age-related changes.
63. Uterus, oviducts, vagina. Histophysiology. Ovarian-menstrual cycle. Age-related changes.
64. Mammary gland. Sources of development. Histophysiology. Characteristics of stroma and parenchyma of lactating and non-lactating gland. Dependence of structure and functioning on neuroendocrine regulation of mammary glands. Changes in mammary glands during ovarian-menstrual cycle and pregnancy. Age-related changes.
65. Eye. Development. Histophysiology of eyeball membranes. Regeneration.
66. Accommodation apparatus of the eye. Crystalline lens, ciliary body, iris. Development, structure, functions.
67. Organ of hearing. Development. Outer, middle, inner ear. Histophysiology of the bony and membranous labyrinth of the inner ear. Structure of the receptor zone. Theory of sound perception.
68. Organ of balance. Inner ear. Bony and membranous labyrinths. Histophysiology. Structure of sensory ridges and sensory spots, their role.

#### **Microspecimens' description**

1. Omental mesothelium (cell boundaries, cell nuclei, stomata).
2. Blood smear (erythrocytes, neutrophils, eosinophils, monocytes, lymphocytes).
3. Loose irregular connective tissue (fibroblasts, fibrocytes, histiocytes, collagen fibers, elastic fibers).
4. Tendon in cross section (first-order bundles - one collagen fiber; tendon cells; endotenonium; peritenonium).
5. Fibrocartilage (collagen fiber bundles, small ones between them; isogenic groups; hyaline cartilage - along the periphery).
6. Elastic cartilage (perichondrium; chondroblast layer; isogenic groups of chondrocytes; intercellular substance: elastic fibers, amorphous substance).

Lamellar bone tissue as exemplified by a cross-section of a tubular bone (periosteum; outer layer of the general plates; concentric plates (osteons); intercalated plates; osteocytes; Volkmann vessel; vessel of osteon).

7. Hyaline cartilage of the trachea: perichondrium, isogenic groups, chondromucoid.
8. Development of bone from mesenchyme - direct osteogenesis. Identify bone plates: osteoblasts, osteocytes, osteoclasts, osteoid, osteomucoid. Mesenchyme: dendritic cells, vessels.
9. Striated muscle tissue of the tongue (cross-sections; longitudinal sections of muscle fibers (symplasts); symplast: sarcolemma, transverse striation, nuclei; endomysium; perimysium: vessels, nerves; stratified epithelium).
10. Unmyelinated nerve fibers: axial cylinder and cytoplasm of lemmocytes; nuclei of Schwann cells.
11. Myelinated nerve fibers: nodes of Ranvier; axial cylinder; myelin sheath.
12. Neurovascular bundle (mixed nerve: nerve fibers, epineurium; muscular artery; medium-sized vein).
13. Spinal ganglion (posterior root of the spinal cord; connective capsule; sensory nerve cells; nuclei of satellite cells; nerve fibers: axial cylinders, nuclei of Schwann cells; anterior root of the spinal cord).
14. Spinal cord (central canal; white matter, nerve fibers; gray matter: anterior, posterior horns of gray matter, multipolar neurons).
15. Cerebellum (gray matter: molecular layer; ganglion layer: Purkinje cells; granular layer: nuclei of association cells; white matter - in the center of the gyrus).
16. The cerebral cortex (white matter: nerve fibers; gray matter: molecular layer, layer of giant pyramidal cells of Betz, polymorphic layer. White matter: nerve fibers. Microvessels).
17. Longitudinal section of the inner ear (cochlea: cochlear axis: spiral ridge, spiral ganglion; membranous labyrinth: vestibular membrane, spiral ligament, vascular stria, tympanic membrane, organ of Corti, tectorial plate; bony labyrinth, scala tympani, scala vestibuli).
18. Cornea of the eye (stratified squamous nonkeratinizing epithelium, Bowman's membrane, corneal stroma, Descemet's membrane, Descemet's simple squamous epithelium - endothelium).
19. Posterior wall of the eye (sclera, choroid, retina: pigment layer, layer of rods and cones, external limiting membrane, external granular layer, external plexiform layer, internal granular layer, internal plexiform layer, ganglion cell layer, nerve fiber layer, internal limiting membrane).
20. Arterioles, venules, capillaries of the pia mater (arteriole: endothelial nuclei, smooth muscle cell nuclei; venule, capillary).
21. Elastic artery - aorta (middle layer: elastic membranes; outer layer).
22. Heart wall (endocardium, myocardium, Purkinje fibers).
23. Lymph node (capsule, trabeculae, cortex: secondary nodules, reactive center; medulla: medullary cords; sinuses: marginal, intermediate cortical, intermediate medullary).
24. Spleen (capsule, mesothelium, trabeculae: trabecular artery, vein, smooth muscle cell bundles; white pulp – splenic (Malpighian) bodies, central artery; red pulp).  
Bone marrow smear (myeloid tissue, developing blood cells: blast, metamyelocyte, myelocyte, red blood cell lineage cells, progenitor cells).

25. Histosection of red bone marrow in bone cavities of flat bones (based on pituitary gland preparation) (sinusoidal capillaries, nuclei of reticular and hematopoietic cells, megakaryocytes, fat cells).
  26. Thyroid gland (lobule: follicles, wall epithelium, colloid, interstitium, interfollicular islets, interlobular connective tissue).
  27. Pituitary gland (adenohypophysis - anterior lobe: epithelial cords, capillaries; middle lobe: pseudofollicles; epithelial cords; remnant of Rathke's pouch; neurohypophysis - posterior lobe). Red bone marrow in bone cavities of flat bones (sinusoidal capillaries, nuclei of reticular and hematopoietic cells, megakaryocytes, fat cells).
  28. Adrenal gland: Connective tissue capsule, trabeculae. Cortex: zona glomerulosa, zona sudanophobica, zona fasciculata, zona reticularis; medulla: vessels, chromaffin cells - endocrinocytes.
  29. Thymus: lobule basement membrane, in the lobule: cortex, lymphocyte and reticular cell nuclei; medulla: lymphocytes, Hassale's corpuscles, capillaries. Interlobular connective tissue.
  30. Finger skin. Epidermis: basal membrane, germination layer (basal layer and spinous cell layers), granular layer, shiny layer, stratum corneum. Dermis: papillary layer, reticular layer: secretory sections of sweat glands, vessels, nerves, lamellar corpuscle; subcutaneous tissue, lobules of fat cells, layers of loose connective tissue.
  31. Skin with hair. Longitudinal section: hair root: bulb, papilla, matrix. Hair proper. Inner epithelial sheath; outer epithelial sheath, cuticle. Connective tissue bursa of the hair follicle; muscle that raises the hair. Sebaceous gland.
  32. Lactating mammary gland. Interlobular connective tissue, interlobular excretory ducts, vessels. Lobules: secretory sections, interstitium.
  33. Lip (cutaneous, transitional, mucous parts of the lip, muscle, connective tissue, vessels, glands).
  34. Foliate papillae of the tongue (secondary connective tissue papillae, taste buds, Ebner's salivary glands, striated muscle of the tongue).
  35. Filiform papillae of the tongue (keratinization cone). Fungiform papillae. Muscle fibers.
  36. Development of the tooth. Stratified epithelium of the gum; dental plate. Tooth rudiment – enamel organ. Early stage. Structures of the enamel organ: from the lateral surfaces – flat epithelial cells, enamel organ pulp – dendritic epithelial cells, mesenchymal papilla, prismatic epithelial cells – adamantoblasts on the basal membrane of the mesenchymal papilla. Outer convex surface of the microspecimen: developing skin; multilayered epithelium – epidermis, hair follicles, connective tissue. In the middle part of the section: bone beams – bone development from mesenchyme, mesenchyme.
  37. Tooth development. Tooth rudiment. Late stage (dental pulp, odontoblasts, dentin, enamel, enameloblasts – adamantoblasts).
  38. Palatine tonsil: crypt, multilayered epithelium, lymphoid follicles in the proper lamina of the mucosa, connective tissue capsule, submucosa, mixed salivary glands.
  39. Protein parotid salivary gland. Lobe: protein secretory sections, salivary tubes. Interlobular connective tissue layers, interlobular excretory ducts, vessels.
- 
40. Cross-section of the esophagus. Coatings. Mucous membrane: multilayered epithelium, connective tissue plate. Submucosa, proper glands of the esophagus. Muscular membrane: striated muscle fibers (circular layer; longitudinal layer). Adventitia.
  41. Fundus of the stomach (mucosa: gastric pits, fundic glands, parietal cells, muscularis mucosa; submucosa, muscularis mucosa – three layers; serous membrane).
  42. Pyloric part of the stomach (mucosa: gastric pits, pyloric glands, muscularis mucosa; submucosa; muscular membrane: pronounced circular layer, longitudinal layer; serous membrane).
  43. Duodenum (mucosa: villi, crypts, muscularis mucosa; submucosa: Brunner's glands; muscularis mucosa - two layers, serosa).
  44. Jejunum (mucosa; high villi and their cross sections, crypts, goblet cells, muscularis mucosa; submucosa; muscularis mucosa; serosa).
  45. Large intestine (mucosa; crypts, goblet cells, solitary follicle, muscularis mucosa; submucosa, muscularis mucosa; serosa).
  46. Pig liver (hepatic lobule: central vein; trabecular hepatocytes; interlobular connective tissue; triad; artery, vein, bile duct, collecting vein).
  47. Human liver (complex lobules: central veins, intercalated veins, hepatic trabeculae, sinusoidal capillaries, triad, collecting vein).
  48. Pancreas. Exocrine part: lobules: secretory sections; interlobular connective tissue, interlobular excretory duct, vessels. Endocrine part in lobules: islets of Langerhans.
  49. Cross-section of decalcified tooth (see notebook for legend).
  50. Trachea (mucosa: single-layer pseudostratified ciliated epithelium, connective tissue of lamina propria; submucosa, mixed glands; hyaline cartilage of fibrocartilaginous membrane: isogenic groups, intercellular substance, perichondrium; adventitia).
  51. Lung (medium-sized bronchus: mucous membrane, muscularis mucosa; submucosa, mixed glands; islets of cartilage of the fibrocartilaginous membrane; adventitia, pulmonary arteries and veins; bronchial

vessels among the alveoli; small-sized bronchus: muscularis mucosa; alveoli, interstitial tissue).

52. Epiglottis (elastic cartilage, anterior oral surface, posterior - aboral surface, mucous glands, mixed).
53. Rat kidney. Capsule. Cortex: renal corpuscle: vascular glomerulus, nuclei of mesangial cells, podocytes of the intravenous layer of the capsule, capsule cavity, outer layer of the capsule; proximal convoluted part of the nephron, distal convoluted part of the nephron). Medulla: straight tubules. The boundary between the cortex and medulla: arcuate vessels, renal corpuscles of the juxtamedullary nephrons.
54. Ureter (mucous membrane: transitional epithelium, connective tissue plate; submucosa; muscular membrane - two layers of myocytes; adventitia).
55. Urinary bladder (the mucous membrane has a folded character: transitional epithelium, connective tissue plate; submucosa; myocyte bundles of the three-layer muscular membrane, layers of connective tissue; serous membrane, mesothelial nuclei).
56. Testicle (albuginea, cross sections of the convoluted tubule, Sertoli cell nuclei, determine the germ cells at different stages of differentiation, connective tissue of the interstitium, Leydig cells, blood capillaries).
57. Epididymis (sections of epididymis canal: bilayered epithelium, spermatozoa accumulation; vas deferens: scalloped epithelium).
58. Prostate gland. Capsule, interlobular layers of connective tissue, myocyte bundles, interlobular ducts. Urethra: transitional epithelium. Lobule: terminal secretory sections, stellate, interstitium, myocyte bundles.
59. Ovary (germinal epithelium - mesothelium of the tunica albuginea; cortex: primordial, growing, dense, mature follicles: in a mature follicle, determine the follicle membranes: granular membrane, connective tissue theca, follicle cavity, oviparous tubercle, 1st order oocyte, radiant crown of the oocyte. Atretic body. Remains of the corpus luteum at the stage of inverse development. Medulla: connective tissue, vessels.
60. Oviduct: mucous membrane: villi of the mucous membrane (epithelium, connective tissue); muscular membrane (two layers); serous membrane.
61. Corpus luteum (capsule, luteal cells, connective tissue layers).  
Mammalian uterus: endometrium (epithelium, connective tissue, uterine glands); myometrium (three layers, determine vascular layer of the myometrium); perimetrium (connective tissue, mesothelium).