

SEI AVICENNA TAJIK STATE MEDICAL UNIVERSITY

**«APPROVED»
Deputy of Education of SEI
Avicenna Tajik State Medical University**

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« _____ » _____ 2019

Department of Histology

Exsam questions on histology for students of medical faculty.

Dushanbe -2019

Exsam questions on histology for students of medical faculty.

I. Subject: Structure of the cytoplasm. Organelles and inclusions.

1. The cell and its parts
2. Cytoplasm and its parts. Composition of the hyaloplasm and its significance
3. The functional significance, chemical composition and structure of the universal biological membrane
4. The definition of "organelles, classification
5. Endoplasmic reticulum. Type, structure and functions.
6. Golgi complex. The structure and functions.
7. Mitochondria. The structure and functions.
8. Lysosomes, types structure and functions
9. The definition of "inclusion", classification, differences from the organelles.

II. Subject: Structure of the nucleus. Types of cell division.

1. The nucleus structure of non-dividing cells (in interphase)
2. The structure and function of the nuclear envelope and nucleoli.
3. The life cycle of cells. Methods of cell division.
4. Preparation of cells to division. Periods of interphase.
5. The phases of mitosis and its biological significance.
6. Meiosis, its differences from mitosis. The biological significance of meiosis.
7. Amitosis, endomitosis essence and meaning.

III. Common embryology. Stage of embryogenesis.

1. Stages of embryogenesis and structures forming as a result.
2. Structure of the spermatozoa and ova.
3. Fertilization its stage and biological significance.
4. Cleavage, types of cleavage and types of blastula.
5. Gastrulation and its types.
6. Extra-embryonic organs. The source of development and functional significance.

IV. Subject: Epithelial tissue.

1. General characteristics and functions of epithelial tissues.
2. Morpho-functional classification of epithelial tissue
3. Onto-phylogenetic classification of epithelial tissue.
4. Structure of the epithelial tissues.
5. Features of the structure, function and secretion of endocrine and exocrine glands.
6. Exocrine glands classification according to localization and structure of the secretory and excretory parts.
7. Types of secretion of exocrine glands.

V. Subject: Blood and lymph.

1. Components of the blood and its basic functions.
2. The structure and function of erythrocytes.
3. Hemoglobin, its composition, types and functions
4. Quantity common characteristic and classification of the WBC.
5. Granular leukocytes. Basis of the classification and functional significance.
6. Agranular leukocytes. Basis of the classification and functional significance.
7. Blood Platelets. The structure and functional significance.
8. Hemogram and formula of WBC.

VI. Subject: Connective tissues.

1. Source of the development, functions, features of the structure of connective tissue.
2. Classification and localization of a different type of connective tissues.
3. Structure and composition of the intercellular substances of the fibrous connective tissue.
4. Loose fibrous connective tissue: structure, cellular composition, location, function.
5. Cellular composition of the loose fibrous connective tissue. Fibroblast, its structure and functions.
6. Cellular composition of the loose fibrous connective tissue. Macrophage, its structure and functions.
7. Cellular composition of the loose fibrous connective tissue. Mast cell, its structure and functions.
8. Cellular composition of the loose fibrous connective tissue. Plasmocyte, its structure and functions.
9. Dense fibrous connective tissue: structure, location and function
10. Connective tissue with special properties: location, functions.

VII. Subject. Skeletal tissue. Cartilage tissue.

1. General morpho-functional characteristics and types of cartilage.
2. Structural components and chemical composition of cartilage tissue.
3. Perichondrium, layers, its tissue structure and function.
4. Localization and structure of hyaline cartilage.
5. The location and structure of elastic cartilage difference from hyaline cartilage
6. The location and structure of fibrocartilage.

VIII. Subject. Skeletal tissue. Bone tissue.

1. Morpho-functional characteristics and types of bone tissue.
2. The cellular composition of bone, structure and functions.
3. Osteoblast. Microscopic structure, location and functions
4. Osteocyte. Microscopic structure, location and functions
5. Osteoclast. Source of origin, microscopic structure, location and functions
6. The location and structure of the cancellous (retikulofibrous) bone in the body.
7. The location and structure of the lamellar bone tissue
8. Structural components of the periosteum and endost.

IX. Subject. Muscle tissue.

1. The basic morphological characteristics of muscle tissue.
2. Histogenetic and morpho-functional classification of muscle tissue.
3. Types of smooth muscle tissue, sources of development and locations.
4. The structure of striated muscle fibers.
5. The structure of the myofibrils of striated muscle tissue.
6. Structure and function of smooth muscle cells.
7. Types, structure and functions of cardiomyocytes.

X. Subject: Nervous tissue.

1. Embryonic source and histogenesis of neural tissue. The structural elements of the nervous tissue.
2. Morphological classification and location of neurons
3. Functional classification and location of neurons. Reflectory arc.
4. Structure of the neurons according to light and electronic microscopy.
5. The structure of the neuron. The structure and functional significance chromatophilic substance (tigroid) and neurofibrills.
6. Classification and functions of neuroglia.
7. Types and structure of the nerve fibers
8. Structure and functions of macroglia
9. Structure and functions of microglia

XI. Subject: Nervous system - 1

1. Embryonic source of development and histogenesis of the nervous system.
2. Histological structure of the spinal ganglion.
3. Histological structure, the location of the autonomic ganglion.
4. The histological structure of the gray and white matter of the spinal cord and its difference
5. Nucleus of the gray matter of the spinal cord and its functional characteristics.
6. Peripheral nerve: tissue composition of its membrane

XII. Subject: Nervous system - 2

1. The embryonic development of the brain.
2. The functional significance of the cerebellum. Location gray and white matter in the cerebellum.
3. The structure of the cerebellar cortex. Cellular composition of cortical layers.
4. Afferent and efferent nerve fibers of the cerebellum.
5. Common characteristic and the functional significance of the cerebral cortex.
6. The concept of cytoarchitectonics and myeloarchitectonics of the cerebral hemispheres.

XIII. Subject. Sense organs. The organ of sight and smell.

1. The concept of analyzers and its parts. Pavlov's teaching on analyzers,
2. Classification of the sense organs.
3. Sources of the eyes development
4. The membranes of the eyeball, and its tissue composition.
5. Parts of the fibrous membrane, its tissue composition and function.
6. Histological structure and function of the cornea.
7. Neural composition of retina. Synaptic zone.
8. Photoreceptor cells of the retina. Features of the structure and significance.
9. Functional apparatus of eyes and its significance.

XIV. Subject. Senses. The organ of taste, hearing and balance.

1. Structure of the outer ear.
2. Structure of the middle ear.
3. Membranous cochlear duct, layers, tissue composition.
4. General structure of the Corti organ.
5. Sensory-epithelial cells of the Corti organ,
6. Structure of the ampullary crests and function.

XV. Subject: Cardiovascular system.

1. Embryonic development, classification and function of blood vessels.
2. General structure of the blood vessels.

3. Classification and function of arteries.
4. Structure and function of muscular, elastic and mixed type arteries. Differences.
5. Structure and function of the capillaries.
6. Types of capillaries according to the structure and diameter
7. Classification and functional features of veins
9. Embryonic source of origin of the endocardium and its tissue composition.
10. Tissue composition and source of origin of the myocardium and epicardium
- XVI. Subject: Organs of hematopoiesis and immune defense. Central group**
1. General and morpho-functional characteristics and classification of the hematopoietic and immune defense organs
2. Embryonic source of development and structure of the red bone marrow. Stroma and parenchyma.
3. Microscopic structure of the red bone marrow
4. Common characteristic and functions of the thymus as a central organ of T-lymphopoiesis
5. The structure and tissue composition of the cortex and medulla of the thymus. Hemato-thymus barrier
6. The concept of age and accidental involution of the thymus.
- XVII. Subject: Organs of hematopoiesis and immune defense. Peripheral group.**
1. Common characteristic, source of development and function of the lymph nodes.
2. Cytological features of the cortex and medulla of lymph nodes.
3. The sinuses of lymph nodes, their structure and functional significance.
4. Embryonic development and the functional significance of the spleen.
5. Microscopic structure of the white and red pulp
6. Features of blood circulation in the spleen. The concept of open and closed type circulation.
- XVIII. Subject: Endocrine system. The central organs.**
1. General morpho-functional characteristics and classification of the endocrine glands.
2. Definition of hormones and general characteristics. Role of the hormones in the regulation the body's functions.
3. Structure and function of the hypothalamus. Hormones of the hypothalamus .
4. Sources of the development of the pituitary gland.
5. Anterior lobe of the pituitary gland. Structure and classification of endocrinocytes.
6. Structure and function of the middle and posterior part of pituitary gland.
7. The structure and function of the pineal gland.
- XIX. Subject: Endocrine system. Peripheral organs.**
1. Embryonic source of development and functions of thyroid gland..
2. Microscopic structure of the thyroid follicles.
3. Changes in the structure of follicles depending on the functional state of the thyroid gland (hypo/hyperfunction)
4. Microscopic structure, functional significance of the parathyroid glands.
5. Source of development and structure of the adrenal cortex.
6. Zones of the adrenal cortex, morphological features and secreted hormones.
7. Source of development, structure and function of the adrenal medulla.
- XX. Subject: The digestive system. Oral cavity organs. The pharynx and esophagus.**
1. Morpho-functional characteristics of the sections of the digestive tract.
2. Common structure of the digestive tube (layers and tissue composition)
3. Structure of the oral cavity.
4. Structure and function of the tongue . Tongue papillae: type, function, structure
5. Lympho-epithelial ring of Pirogov. The functions and structure of the tonsils.
6. The structural features of the different part of the pharynx.
7. Development sources of the esophagus. The structure of the esophageal wall at its different parts.
- XXI. Subject: The digestive system (stomach, small and large intestine)**
1. Source of development, and function of the stomach.
2. Relief and tissue composition of the stomach mucous membrane
3. Structure and functional features of the gastric glands.
4. Cellular composition and functions of principal gastric gland.
5. Structure and function of the small intestine.
6. Microscopic structure of the intestinal epithelium
7. Structure and function of the colon.
- XXII. Subject: The glands of the digestive tract (liver, pancreas, salivary glands).**
1. Development and functions of the liver.
2. The structure of the liver. Structural and functional unit of the liver.
3. The microscopic structural unit of the liver.
4. Features and functions of the cells of the sinusoidal capillary wall.
5. Vascular system of the liver.
6. Development of pancreas and its general characteristics.
7. Structure and function of the exocrine part of pancreas.
8. Structure and function of the endocrine part of the pancreas.

9. Common characteristic of the oral cavity glands, classification.
10. Large salivary glands, differences of the secretory portion structure.

XXIII. Subject: The skin and its derivatives.

1. Sources of the development and function of the skin.
2. The structure of the epidermis. Tissue and cellular composition function.
3. The sources of the development and structure of the dermis
4. Glands of skin, classification. Type of secretion and functions.
5. Structure and function of the sweat glands.
6. Structure and function of the sebaceous glands.
7. Hair, structure, types.

XXIV. Subject: Respiratory system.

1. Source of the development, functions of the organs of respiratory system.
2. Common structure of the airways (layers, tissue and cellular composition)
3. Structure and the functional significance of the nasal cavity.
4. The structure and functional significance of the larynx.
5. Structure of the wall of the trachea, its functional significance.
6. Respiratory part of lungs. The concept of the acinus.
7. Structure and function of the alveoli wall. Aero-hematic barrier.

XXV. Subject: The urinary system.

1. Embryonic development of kidney
2. The structure of the kidney, its cortex and medulla. Type of nephrons.
3. Structural and functional unit of the kidney and its structure.
4. 1 st stage of the urine formation. Conditions and structures participating in this process.
5. 2 nd stage of urine formation. Conditions and structures participating in this process.
6. 3 rd stage of urine formation. Conditions and structures participating in this process.
7. Blood circulation of the kidney. Features of the cortical and juxtamedullary blood circulation
8. Endocrine system of kidney
9. Common structure of the urinary tract.

XXVI. Subject: Male reproductive system.

1. Sources of development, and functions of the testis.
2. Structure of the testis.
3. The wall structure of the seminiferous tubules.
4. The endocrine function of the testis, interstitial cells.
5. Spermatogenesis.
6. Source of the development, functions and structure of the prostate gland.

XXVII. Subject: Women's reproductive system

1. Structure and function of the ovary.
2. Stages of development of the corpus luteum and its functional significance
3. Endocrine function of the ovary. Neurohumoral regulation of the ovarian functions.
4. Oogenesis.
5. Source of the development, function and structure of the fallopian tubes.
6. Source of development, function and the structure of the uterus.
7. Structure and function of the endometrium.
8. Structure and function of the myometrium.

XXVIII Subject: Human embryology

1. Stages of the embryogenesis.
2. Fertilization and its stages
3. Cleavage of the zygote
4. Implantation of the blastocyst and its stages
5. Type and stages of the gastrulation
6. Differentiation of the germ layers
7. Extra-embryonic organs and their functional significance

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