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Кафедра гистологии

«Утверждаю»
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«Согласовано»

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**ПЕРЕЧЕНЬ ЭКЗАМЕНАЦИОННЫХ ВОПРОСОВ
И ПРАКТИЧЕСКИХ ЗАДАНИЙ ПО ДИСЦИПЛИНЕ
«ГИСТОЛОГИЯ, ЭМБРИОЛОГИЯ, ЦИТОЛОГИЯ»**

**Для факультета иностранных студентов
по специальности «Лечебное дело» - 31.05.01**

CYTOLOGY

1. General plan of cell structure. Cell membrane: structure, chemical compound and functions.
2. General plan of cell structure. Classification of organelles. The structure and functions of membranous organelles.
3. General plan of cell structure. Classification of organelles. The structure and functions of nonmembranous organelles.
4. General plan of cell structure. Classification of organelles. The structure and functions of cytoskeleton elements. The types of inclusions.
5. Nucleus. Components of the interphase nucleus. The structure of nuclear membrane. Nuclear pores. Nuclear skeleton. Nuclear matrix.
6. Nucleus. Components of the interphase nucleus. Types of chromatin. Structure and function of nucleolus.
7. The types of cell division. Cell cycle. Characteristic of interphase. Phases of mitosis and their characteristics. Biological significance of mitosis.

EPITHELIAL TISSUES.

1. The common characteristic of epithelial tissues. The specific peculiarities of epithelial structure. Classification of epithelia.
2. Classification of epithelia. The structure and functions of simple epithelia. Development of various types of simple epithelia.
3. Classification of epithelia. The structure and functions of stratified epithelia. Development of various types of stratified epithelia.
4. Classification of epithelia. The structure and function of glandular epithelium.

BLOOD.

1. Components, development and functions of blood. Hemogram. Erythrocytes: number, measure, structure, functions and life span.
2. Components, development and functions of blood. Hemogram. Leukocytic formula. Characteristic of leukocytes. The structure, measure, functions and life span of various types of granulocytes.
3. Components, development and functions of blood. Hemogram. Leukocytic formula. Characteristic of leukocytes. The structure, measure, functions and life span of various types of agranulocytes.
4. Components, development and functions of blood. Hemogram. Platelets: structure, measure, function and life span.

CONNECTIVE TISSUES.

1. Classification, development and components of connective tissues. The structure of extracellular matrix. The types of connective tissue fibers.
2. Classification, development and components of connective tissues. The types of connective tissue cells. Their structure and functions.
3. The structure of proper connective tissue: loose and dense. The regular and irregular dense connective tissues. Structural characteristic of special connective tissues.
4. Classification of supporting connective tissues. The structure of different types of cartilage.

5. Classification of supporting connective tissues. Components of bone tissue. The structure and functions of different types of bone cells.
6. Classification of supporting connective tissues. The structure of primary and secondary bone tissues. Bone histogenesis.

MUSCLE TISSUES.

1. The classification and functions of muscle tissues. Skeletal muscle tissue. Originate of development. Organization of skeletal muscle fibers. Structure of actin and myosin myofibrils. Regeneration of skeletal muscle tissue.
2. The classification and functions of muscle tissues. The structure, originate of development and regeneration of cardiac muscle.
3. The classification and functions of muscle tissues. The development and structure of smooth muscle tissue. The structure of myocytes and myoepitheliocytes. Regeneration of smooth muscle tissue.

NERVOUS TISSUE.

1. The components of nervous tissue. Classification and functions of neurons. The structure of neuron body and processes.
2. The components of nervous tissue. Classification, structure and functions of various types of glial cells.
3. The components of nervous tissue. The structure of myelinated and unmyelinated axons.
4. Classification of synapses. The structure of chemical synapses. Classification and structure of nervous endings.

NERVOUS SYSTEM.

1. Classification of nervous system. Organization of a peripheral nerve. The types of nervous ganglia. The structure of sensory (or spinal) ganglia.
2. Classification of nervous system. Spinal cord: the structure of gray and white matters. Nuclei (the groups of neurons) of anterior, intermediate, and posterior horns.
3. The brain. The structure and functions of cerebral cortex (neocortex) layers. Characteristic of neurons. Afferent and efferent fibers of cerebral cortex.
4. The brain. The structure and functions of cerebellum layers. Characteristic of neurons. Afferent and efferent fibers of cerebellum.

CARDIOVASCULAR SYSTEM.

1. The common characteristic, development and components of cardiovascular system. The structural features of the vascular wall. Arteries: classification, structure and functions.
2. The common characteristic, development and components of cardiovascular system. The structural features of the vascular wall. Veins: classification, structure and functions.
3. The common characteristic and components of cardiovascular system. The vessels of microcirculation. The structure and functions of arterioles, venules and arteriolo-venular anastomoses.
4. The common characteristic and components of cardiovascular system. Microcirculation. Classification of capillaries. The general plan of wall structure of capillaries and their functions.

5. The components of cardiovascular system. Heart: the originate and structure of heart wall (endocardium, myocardium, epicardium). Conducting system of the heart.

ORGANS OF HEMOPOIESIS AND IMMUNOGENESIS.

1. Characteristic and classification of hemopoietic organs. Prenatal hemopoiesis. The phases of embryonal development of blood cells. Hemopoiesis in the wall of the yolk sac, liver, thymus, spleen, lymph nodes and red bone marrow.
2. Characteristic and classification of hemopoietic organs. Postnatal hemopoiesis. Characteristic of the hemopoietic classes of the developing blood cells. Erythropoiesis.
3. Central organs of hemopoiesis and immunogenesis. Originate, structure and functions of red bone marrow. Bone marrow stroma. Stromal cells and their functions.
4. Central organs of hemopoiesis and immunogenesis. Originate, structure and functions of thymus. Structure of cortex and medulla. The development of T-lymphocytes within the thymus.
5. Peripheral organs of hemopoiesis and immunogenesis. Originate of lymph nodes. The structure of lymph nodes cortex, paracortex and medulla. Functions of lymph nodes.
6. Peripheral organs of hemopoiesis and immunogenesis. Originate of spleen. The structure of spleen: red and white pulp. Splenic circulation. Functions of the spleen.

IMMUNITY SYSTEM.

1. Immune system. The main lines of defence: protective surface mechanisms, non-specific tissue defence and specific immune responses. Their characteristics.
2. Immune system. Basic types of immune reactions. Antigens and antibodies. The classes of immunoglobulins.
3. Immune system. Antigens and antibodies. T-lymphocytes, B-lymphocytes and antigen-presenting cells.

ENDOCRINE SYSTEM.

1. The common structure of endocrine system. Classification of endocrine structures. Hypothalamus. The nuclei of anterior and middle parts of hypothalamus, their hormones. Hypothalamo-hypophyseal portal system.
2. The common structure of endocrine system. Classification of endocrine structures. The hypophysis cerebri. The structure of adenohypophysis and neurohypophysis. Pars tuberalis and pars intermedia. Hypothalamo-hypophyseal portal system.
3. The common structure of endocrine system. Classification of endocrine structures. The structure and hormone of pineal gland.
4. The common structure of endocrine system. Classification of endocrine structures. The thyroid gland. The structure of follicles and the follicular epithelium. Secretory cycle of hormone synthesis. Parafollicular cells and their characteristic.
5. The common structure of endocrine system. Classification of endocrine structures. The structure of parathyroid glands.
6. The common structure of endocrine system. Classification of endocrine structures. The structure of the suprarenal glands. Adrenal cortex. Characteristic of each zone of the adrenal cortex. Hormones of adrenal cortex. The structure and hormones of the adrenal medulla.

THE ORGANS OF SENSES.

1. Sense organs. Their classification. Structure and function of the organs of smell and taste.
2. Sense organs. Their classification. Eye: structure of the eyeball. Originate of the eyeball components. Functional apparatus of the eye. Structure of the cornea, ciliary body, iris and lens.
3. Sense organs. Their classification. Eye: the structure of retina. Its layers. Structure of the rods and cones. Components of the all layers of retina.
4. Sense organs. Their classification. Ear: the structure of external, middle and internal ear. Compartments of the cochlea. Structure of Corti's spiral organ.
5. Sense organs. Their classification. Ear: the structure of external, middle and internal ear. Vestibular apparatus. Structure of the saccule, utricle and semicircular ducts.

DIGESTIVE SYSTEM.

1. The common characteristic of digestive system. The basic structure of the digestive tract. Origin of the digestive tract structures. Structure of the tongue. Structure of the tonsils.
2. The common characteristic of digestive system. The basic structure of the digestive tract. Origin of the digestive tract structures. The structure of the large salivary glands of the oral cavity.
3. The common characteristic of digestive system. The basic structure of the digestive tract. Origin of the digestive tract structures. The function and structure of the esophagus.
4. Stomach. Its functions. The structure of the stomach wall. Gastric glands. The cell composition of the main gastric glands. Their structure and functions.
5. Small intestine. Its functions. The structure of the small intestine wall. Characteristic of epithelial lining. The cell composition of the villi and crypts epithelium.
6. Large intestine. Its functions. The structure of the large intestine wall. The cell composition of the epithelial lining. The structure of appendix.
7. Pancreas. Its functions. The structure of the exocrine part. Characteristic of the acinocytes and duct system. The structure of the endocrine part. Characteristic of the pancreatic islet cells.
8. The liver. Its functions. The structure of the classic liver lobule. Blood supply of the liver. The structure of the gallbladder.

THE RESPIRATORY SYSTEM.

1. The respiratory system. Its functions. Components of respiratory tract and respiratory portion. General plan of the respiratory tract structure. Structure of trachea and bronchi.
2. The respiratory system. General plan of the respiratory tract structure. The structure of respiratory portion (acinus and alveoli).

THE SKIN.

1. Skin. The origins of its development. Its functions. Structure of epidermis and dermis.

2. Skin. The origins of its development. Its functions. Skin appendages. Structure of sweat, sebaceous glands and hair follicle.

THE URINARY SYSTEM.

1. The urinary system. The origin of its development. Its functions. The structure of kidneys. The types of nephrons. The structure of nephron and its components. Blood circulation of kidney.
2. The urinary system. The origin of its development. Its functions. Renal endocrine system. The structure of juxtaglomerular and prostaglandin apparatuses. Organs of urinary passage. The structure of ureters and urinary bladder.

THE MALE REPRODUCTIVE SYSTEM.

1. The organs of male reproductive system. The origin of its development. The functions and structure of testis. Seminiferous tubules. Characteristic of the tunica propria and cells of seminiferous tubules. Structure and function of sustentacular (or Sertoli) cells. Spermatogenesis.
2. The organs of male reproductive system. The origin of its development. Characteristic of the testis interstitial tissue. Structure and function of interstitial (or Leydig) cells. Blood-testis barrier. Accessory genital glands. The structure and functions of the seminal vesicles and prostate.

THE FEMALE REPRODUCTIVE SYSTEM.

1. Organs of female reproductive system. General structure of ovaries. Formation and structure of ovarian follicles. Ovulation. Structure and types of corpus luteum. Endocrine function of ovaries. Oogenesis.
2. Organs of female reproductive system. Structure and functions of uterine tubes, uterus, and mammary glands. Ovario-menstrual cycle.

THE EMBRIOLOGY OF HUMEN.

1. Embryology. Stages of human embryonic development. The structure of spermatozoon and oocyte.
2. Embryology. Stages of human embryonic development. Characteristic of the fertilization. capacitation of sperms, acrosome reaction, penetration, cortical reaction and events after penetration. Zygote.
3. Embryology. Stages of human embryonic development. Characteristic of the human cleavage. Blastocyst formation.
4. Embryology. Stages of human embryonic development. Characteristic of the human gastrulation.
5. Embryology. Stages of human embryonic development. Differentiation of the germ layers and formation of the axial organs.
6. Embryology. Provisory organs: sructure and functions of alianto, yolk sac, amnion, and umbilical cord.
7. Embryology. Implantation and placentation. Functions of placenta. Structure of the fetal and maternal portions of placenta. Placental barrier, its functions. Cotyledons.

EXAM MICROPREPARATIONS.

1. Simple columnar epithelium (dyes: haematoxylin and eosin).
2. Methotelium (dye: impregnation by silver salts).

3. Blood of human (dyes: azure 2 and eosin to Romanovsky-Giemsa method)
4. Blood of frog (dye: haematoxylin and eosin).
5. Tendon (dyes: haematoxylin and eosin).
6. Ligament (dyes: picrophuxin and haematoxylin).
7. Hyaline cartilage (dyes: haematoxylin and eosin).
8. Elastic cartilage (dye: orcein).
9. The diaphysis of compact lamellar bone (dyes: thionin and pycrin acid).
10. Skeletal muscle tissue (dye: iron haematoxylin).
11. Cardiac muscle tissue (dye: iron haematoxylin).
12. Smooth muscle tissue (dyes: haematoxylin and eosin).
13. Spinal ganglia (dyes: haematoxylin and eosin).
14. Spinal cord (dye: impregnation by silver salts).
15. Cerebral cortex (dye: impregnation by silver salts).
16. Cerebellum (dye: impregnation by silver salts).
17. Fibers of Purkinje (dyes: haematoxylin and eosin).
18. Thymus (dyes: haematoxylin and eosin).
19. Lymph node (dyes: haematoxylin and eosin).
20. Spleen (dyes: haematoxylin and eosin).
21. Thyroid gland (dyes: haematoxylin and eosin).
22. Suprarenal gland (dyes: haematoxylin and eosin).
23. Retina (dyes: haematoxylin and eosin).
24. Taste buds (dyes: haematoxylin and eosin).
25. Filiform papillae of the tongue (dyes: haematoxylin and eosin)
26. Palatine tonsil (dyes: haematoxylin and eosin)
27. Parotid gland (dyes: haematoxylin and eosin)
28. Esophagus (dyes: haematoxylin and eosin)
29. Fundus of stomach (dye: red Kongo)
30. Small intestine (dyes: haematoxylin and eosin)
31. Duodenum (dyes: haematoxylin and eosin)
32. Large intestine (dyes: haematoxylin and eosin)
33. Liver of human (dyes: haematoxylin and eosin)
34. Pancreas (dyes: haematoxylin and eosin)
35. Trachea (dyes: haematoxylin and eosin)
36. Lung (dyes: haematoxylin and eosin)
37. Skin of the finger (dyes: haematoxylin and eosin)
38. Skin with f hair (dyes: haematoxylin and eosin)
39. Kidney (dyes: haematoxylin and eosin)
40. Urinary bladder (dyes: haematoxylin and eosin)
41. Testis (dyes: haematoxylin and eosin)
42. Ovary (dyes: haematoxylin and eosin)
43. Uterus (dyes: haematoxylin and eosin)
44. Maternal part of placenta (dyes: haematoxylin and eosin)