CARDIOVASCULAR SYSTEM. LYMPHOID ORGANS.

1. List what the cardiovascular system consists of?
A) arteries, veins, venules, capillaries, lymphatic capillaries
B) heart, arteries, veins, capillaries, venules, arteriol-venular anastomoses, lymphatic capillaries, vessels, ducts
C) heart, lymph nodes, veins, capillaries, venules, lymphatic capillaries
D) heart, arteries, veins, lymphatic capillaries, lymphatic vessels and ducts
E) arteries, capillaries, venules, veins, lymphatic vessels and ducts, microcirculatory bed

2. Choose, the sources of heart development are ...
A) the visceral leaf of the mesoderm
B) mesenchyme and visceral leaf of mesoderm
C) mesenchyme and parietal leaf of mesoderm
D) endoderm of the primary intestine
E) nervous crest

3. Specify the time of laying the heart during embryogenesis ...
A) at 4 weeks
B) at week 5
C) at 3 weeks
D) at week 6
E) at 2 weeks

4. Indicate whether the blood vessels in the human embryo develop from ...
A) the mesenchyme of the yolk sac
B) mesenchyma of the trunk
C) the mesenchyme of the yolk sac and the mesenchyme of the trunk
D) endoderms of the primary intestine
E) endoderms

5. In the histological preparation of the heart wall between the endocardium and the myocardium, there are large cells with a light cytoplasm and an eccentrically located nucleus. What heart cells have these morphological features?
a) Purkinje cells;
b) contractile cardiomyocytes;
c) lipocytes;
d) endocrine cells;
e) Cell pacemakers.

6. List what factors determine the structure of blood vessels?
A) the activity of biologically active substances
B) blood pressure, blood flow rate
C) blood flow velocity, gravity
D) gravity, circulating immunoglobulins in the blood
E) the influence of the central organs of hematopoiesis

7. Vessel walls have quite significant morphological differences in the structure of the middle shell. What is the reason for the appearance of specific features of the structure of this shell in different vessels?
a) The inductive influence of neurons of the autonomic ganglia;
b) High content of catecholamines in the blood;
c) The influence of the organs of the endocrine system;
d) Regulation by the central nervous system;
e) Hemodynamic conditions.

8. Name what tissues form the artery wall?
A) epithelial, smooth muscle, loose connective tissue

B) epithelial, striated muscle tissue, loose connective tissue
C) epithelial, smooth muscle tissue, dense decorated connective tissue
D) epithelial, smooth muscle tissue
E) epithelial, smooth muscle tissue, reticular

9. Specify what vessels are characterized by the presence of internal and external elastic membranes?
A) muscle type vein
B) arteriole
C) muscle-type artery
D) lymphatic vessel
E) muscle venule

10. Histological specimen presents a vessel the wall of which consists of endothelium, basal membrane and loose connective tissue. What type of vessel is it?
a) Hemocapillary b) Lymphocapillary c) Artery
d) Vein of muscular type e) Vein of non-muscular type

11. An electronic microphotograph shows a macrophagic cell with erythrocytes at different stages of differentiation located along its processes. This is the cell of the following organ:
a) Spleen b) Thymus c) Red bone marrow d) Tonsil e) Lymph node

12. Live vaccine is injected into the human body. Increasing activity of what cells of connective tissue can be expected?
a) Plasmocytes and lymphocytes b) Pigmentocytes and pericytes c) Fibroblasts and labrocytes d) Adipocytes and adventitious cells e) Macrophages and fibroblasts

13. In the blood of a 26-year-old man it was revealed 18% of erythrocytes of the spherical, ball-shaped, flat and thorn-like shape. Other eritrocytes were in the form of the concavo-concave disks. How is such phenomenon called?
a) Pathological poikilocytosis b)Pathological anisocytosis c) Erytrocytosis
d) Physiological poikilocytosis e) Physiological anisocytosis

14. In the microspecimen of red bone marrow there were revealed multiple capillares through the walls of which mature blood cells penetrated. What type of capillares is it?
a) Somatical b) Fenestrational c) Sinusoidal d) Visceral e) Lymphatic

15. Blood sampling for bulk analysis is recommended to be performed on an empty stomack and in the morning. What changes in blood composition can occur if to perform blood sampling after food intake?
a) Increased contents of leukocytes b) Increased plasma proteins
c) Reduced contents of erythrocytes d) Reduced contents of thrombocytes
e) Increased contents of erythrocytes

16. Low level of albumins and fibrinogen was detected in the patients blood. Decreased activity of what organelle of the liver hepatocytes can cause it?
a) Lysosomes b) Granular endoplasmatic reticulum
c) Mitochondrions d) Agranular endoplasmatic reticulum e) Golgi complex

17. In course of an experiment a big number of stem cells of red bone marrow was in some way destructed. Regeneration of which cell populations in the loose connective tissue will be inhibited?
a) Of fibroblasts b) Of lipocytes c) Of pericytes
d) Of macrophags e) Of pigment cells

18. Histological examination of a 40 y.o. mans thymus revealed decreased share of parenchymatous gland elements, increased share of adipose and loose connective tissue, its enrichment with thymus bodies. The organs mass was unchanged. What phenomenon is it?
a) Age involution b) Hypotrophy c) Atrophy d) Dystrophy e) Accidental involution

19. A histological specimen shows a blood vessel. Its inner coat is composed by endothelium, subendothelium and internal elastic membrane. The middle coat is enriched with smooth myocytes. Such morphological characteristics are typical for the following vessel:
a) Non-muscular vein b) Muscular-type vein c) Elastic-type artery
d) Capillary e) Muscular-type artery

20. In the histological preparation of the vessels, the internal and external elastic membranes are well expressed and there are many myocytes in the middle shell. What vessel are we talking about?
a) Extraaortic lymphatic system;
b) A vein with strong muscle development;
c) Elastic type artery;
d) Mixed type artery;
e) Muscle-type artery

21. Large-caliber arteries during systole stretch and return to their original state during diastole, ensuring the stability of blood flow. What are the elements of the vessel wall that can explain this?
a) A large number of fibroblasts;
b) Elastic fibers;
c) Reticular fibers;
d) Muscle fibers;
e) Collagen fibers.

22. If there are terminal elastic membranes in the middle shell of the vessel so this is...
A) arteriole
B) venula
C) mixed type artery
D) muscle-type artery
E) elastic type artery

23. The inner shell of the vessel (intima) is lined with epithelium from the inside. Name it?
a) Mesothelium;
b) Transitional epithelium;
c) Multi-row epithelium;
d) Endothelium;
e) The epidermis.

24. The heart wall is represented in the micropreparation. In one of the shells there are contractile, conductive and secretory myocytes, endomysium with blood vessels. Specify which shell of the heart these structures belong to?
a) atrial myocardium;
b) ventricular endocardium;
c) adventitial;
d) pericardium;
e) epicardium of the heart

25. Choose which of the vessels belongs to the microcirculatory bed…
A) arteries
B) the heart
C) lymphatic vessels
D) arteriole
E) muscle-free vein

26. A vessel is found on the preparation of the soft meninges, in the wall of which there is no middle shell, the outer shell is fused with the surrounding tissue, the inner shell is built of the basement membrane and endothelium. Determine what kind of vessel it is?
a) Fibrous type vein;
b) A vein with a weak development of muscle elements;

c) Arterioles;
d) Mixed type artery;
e) Muscle-type arteries.

27. Patient A. 40 years old suffered a myocardial infarction. Due to what morphological components did the regeneration of the heart wall occur?
a) Proliferation of contractile and conductive cardiomyocytes;
b) Proliferation of connective tissue cells;
c) Proliferation of contractile cardiomyocytes;
d) Intracellular regeneration of contractile cardiomyocytes;
e) Proliferation of conductive cardiomyocytes

28. The heart wall is represented in the micropreparation. In one of the shells there are contractile, conductive and secretory myocytes, endomysium with blood vessels. Specify which shell of the heart these structures belong to?
a) atrial myocardium;
b) ventricular endocardium;
c) adventitious;
d) pericardium;
e) epicardium of the heart.

29. Choose which type this capillary belongs to: endotheliocytes are large,
the basement membrane and pericytes are absent, there are sling filaments?
A) postcapillary venule
B) sinusoidal capillary
C) lymphatic capillary
D) fenestrated capillary
E) somatic capillary

30. Specify which tissues, including the heart wall is formed?
A) smooth muscle tissue
B) cross-striated cardiac muscle tissue
C) cross-striated skeletal muscle tissue
D) cross-striated cardiac and smooth muscle tissues
E) transversely striated cardiac and transversely striated skeletal
muscle tissue

31. The capillary electronogram clearly defines the fenestras in the endothelium and the time in the basement membrane. What is the type of capillary?
a) sinusoidal; b) visceral; c) shunt; d) atypical; e) somatic.

32. Indicate in the cleavage of the basement membrane, the capillary walls are located:
A) myocytes B) pericytes C) fibroblasts D) adventitious cells E) lipocytes

33. List, the hemocapillary wall contains:
A) endotheliocytes on the basement membrane, pericytes, adventitial cells
B) smooth myocytes
C) fibroblasts
D) internal elastic membrane

34. Choose, the tissue composition of the artery wall of various types is determined by:
A) blood pressure, the direction of blood flow
B) the presence of tissues
C) the speed of blood flow
D) the number of shells

35. Choose, age-related changes in the artery wall consist in:

A) its compaction
B) accumulation of sulfated glycosaminoglycans
C) thickening of collagen fibers
D) thickening of elastic fibers and membranes

36. Specify what is characteristic of arteriol-venular anastomosis with epithelioid cells?
A) longitudinal bundles of smooth myocytes in the inner shell
B) circular bundles of smooth myocytes in the outer shell
C) circular bundles of smooth myocytes in the inner shell
D) longitudinal beams in the middle shell

37. Choose where smooth myocytes are located in large lymphatic vessels:
A) in the inner shell B) in the middle shell C) in the outer shell
D) in all shells E) missing

38. Choose where there are vessels of vessels?
A) arteries B) veins C) lymphatic vessels
D) in veins and lymphatic vessels E) in all vessels

39. Specify what is represented by the contractile apparatus of the smooth muscle cell as part of the inferior vena cava?
A) myofibrils
B) thick, thin and intermediate myofilaments
C) thick myofilaments
D) thin myofilaments
E) intermediate myofilaments

40. As a result of thrombosis of the left coronary artery, the death of a group of contractile cardiomyocytes (myocardial infarction) occurred. Determine at the expense of which cells will reparative regeneration mainly occur in the area of damage?
a) preserved cardiomyocytes; b) myosatellitocytes; c) smooth myocytes;
d) fibroblasts; e) myosimplast

41. The cortical substance of the thymus is formed by the following cells:
a) T-blasts and T-lymphocytes b) plasmocytes c) by NK cells d) macrophages

42. Highlight what is the source of thymus development?
A) the epithelium of the pharyngeal intestine between the I and II pairs of gill pockets
B) epithelium of the pharyngeal intestine in the area of III and IV pairs of gill pockets
C) ectodermal epithelium of the oral fossa of the embryo
D) endoderm of the primary intestine
E) coelomic epithelium of primary kidneys

43. Select what tissue forms the thymus stroma?
A) lymphoid B) epithelioretic C) myeloid D) mucosa E) pigmented

44. Specify where the epithelial bodies of Ghassal are located?
A) in the cortical substance of the lymph node
B) the medulla of the thymus lobule
C) in the lymphatic follicles
D) red bone marrow
E) in the spleen

45. Choose which hormone is synthesized in the thymus?
A) thyroxine B) thymosin C) testosterone D) adrenaline E) oxytocin

46. Specify what causes the removal of the thymus in newborn animals?
A) increased proliferation of lymphocytes in all lymphoid nodules of hematopoietic organs
B) a sharp inhibition of lymphocyte proliferation in all lymphoid nodules of hematopoietic organs
C) strengthening the synthesis of pituitary hormones
D) acceleration of puberty
E) weakening of the activity of the red bone marrow

47. List, the hematothymus barrier includes ...
A) epithelioretic cells - macrophages - lymphocytes
B) capillary endothelium - capillary basement membrane - pericapillary space - epithelioretic cell basement membrane - epithelioretic cell cytoplasm
C) lymphoblast - perivascular cells - basement membrane - lymphocyte
D) secretory cells - perivascular cells - basal membrane of the capillary endothelium - lymphocytes
E) capillary endothelium - pericapillary space - epithelioretic cells

48. Alien graft rejection does not occur in mice with removed thymus. Name it, this is due to the absence of ...
A) B-lymphocytes B) macrophages C) T-killers D) monocytes E) plasmocytes

49. An electron micrograph shows a process-shaped cell containing differentiating lymphocytes in deep invaginations of the plasmolemma. Specify which organ is characterized by such an ultrastructure?
a) thymus; b) spleen; c) liver; d) amygdala; e) red bone marrow

50. Choose what function does the lymph node perform?
A) performs myelopoiesis
B) cleanses the lymph from foreign particles and enriches it with lymphocytes
C) destroys old red blood cells
D) synthesizes thymosin
E) regulates blood clotting

51. Specify the source of the development of lymph nodes ...
A) visceral splanchnotoma leaf
B) mesenchyme of the primary kidney
C) mesenchyma around lymphatic vessels
D) epithelium of the primary intestine
E) the parietal leaf of the splanchnotome

52. Identify which cells are part of the lymphatic follicle of the lymph node?
A) lymphoblasts, B-lymphocytes, macrophages
B) endotheliocytes, pericytes
C) fibroblasts, fat cells
D) tanicytes, ependymocytes
E) osteocytes, process cells

53. The histopreparation presents an organ in which lymphocytes form three types of lymphoid structures: lymph nodes, cerebral cords and sinuses. Which body is represented?
a) thymus; b) spleen; c) lymph node; d) amygdala; e) red bone marrow

54. The preparation contains an organ in the reticular stroma of which mature shaped blood elements are located and lymphoid formations are visible. Determine which organ is represented on the drug?
a) thymus; b) spleen; c) lymph node; d) amygdala; e) red bone marrow.

55. The micropreparation shows an organ of lobular structure, the stroma of which consists of process-shaped epithelial cells. Which body is represented?
a) thymus; b) spleen; c) lymph node; d) amygdala; e) red bone marrow

56. In the punctate of the myeloid tissue of a 6-year-old child, cells are found in which pyknosis and removal of the nucleus occur during differentiation. What is the type of hematopoiesis for which these morphological changes are characteristic?
a) thrombocytopoiesis; b) lymphocytopoiesis; c) monocytopoiesis;
d) erythrocytopoiesis; e) granulocytopoiesis

57. In the histological preparation, the parenchyma of the organ is represented by lymphoid tissue, which forms lymph nodes; the latter are located diffusely and contain a central artery. Choose which anatomical formation has this morphological structure?
a) thymus; b) spleen; c) lymph node; d) amygdala; e) red bone marrow.

58. Foci of increased plasmocytogenesis were found in the biopsy of the lymph node in the cerebral cords. Specify the antigen-dependent stimulation of which immunocompetent cells caused their formation?
a) interdigitating cells; b) B-lymphocytes; c) macrophages;
d) T-lymphocytes d) dendritic cells.

59. Morphological studies of the spleen revealed activation of immune reactions in the body. In which structures of this organ does antigen-dependent proliferation of T-lymphocytes begin?
a) the mantle zone of the white pulp;
b) the periarterial zone of the white pulp;
c) the central zone of the white pulp;
d) the marginal zone of the white pulp;
e) red pulp.

60. In a histological preparation, a hematopoietic organ consisting of particles of various shapes is examined. In each lobule there is a cortical and cerebral substance. Which organ do these signs belong to?
a) thymus; b) spleen; c) lymph node; d) amygdala; e) vermiform process

THE ENDOCRINE SYSTEM

61. Specify the sources of thyroid development?
A) the ventral dorsum of the pharyngeal intestine between the I and II pairs of gill pockets
B) the dorsal wall of the pharyngeal intestine between the I and II pairs of gill pockets
C) epithelium III and IV pairs of gill pockets
D) thickening of the coelomic epithelium of the mesentery root
E) ectodermal epithelium and ganglion plate

62. Specify the sources of development of the adrenal glands ...
A) mesonephral duct and nephrogenic tissue
B) thickening of the coelomic epithelium and neuroblasts of the rudiments of sympathetic ganglia
C) mesenchyme in the thickness of the dorsal mesentery
D) visceral splanchnotome leaf
E) nephrogonotomy

63. Specify the sources of development of the epiphysis ...
A) ganglion plate
B) the dorsal wall of the medulla oblongata
C) the dorsal wall of the intermediate brain
D) distal end of the funnel of the third ventricle
E) the midbrain

64. Indicate the sources of development of the parathyroid gland ...
A) the epithelium of the ventral wall of the pharyngeal intestine between the I and II pairs of gill pockets
B) epithelium III and IV pairs of gill pockets of the pharyngeal intestine
C) endoderm of the intestinal tube
D) the epithelium of the dorsal wall of the pharyngeal intestine between the I and II pairs of gill pockets

E) mesenchyme of the trunk

65. Choose which organ contains neurosecretory cells whose processes have extensions containing secretory granules and form synapses with vessels of the neurohypophysis?
A) the pituitary gland
B) epiphysis
C) hypothalamus
D) cerebellum
E) the medulla oblongata

66. Tell us what function does the pituitary gland perform?
A) synthesizes adrenaline
B) regulates the activity of thyrocytes
C) is the central organ of immunogenesis
D) participates in hematopoiesis and immunogenesis
E) is a peripheral organ of immunogenesis

67. Name which cells synthesize follicle-stimulating hormone?
A) thyrotropocytes
B) pituities
C) somatotropocytes
D) gonadotropocytes
E) corticotropocytes

68. Specify which cells synthesize thyroid-stimulating hormone?
A) chromophobic cells of the adenohypophysis
B) thyrotropocytes
C) follicular-stellate cells
D) pituicities
E) neurosecretory cells of the supraoptic nucleus

69. Specify which cells synthesize adrenocorticotropic hormone?
A) endocrinocytes of the glomerular zone of the adrenal cortex
B) corticotropocytes
C) somatotropocytes
D) pinealocytes
E) calcitoninocytes

70. Choose which cells regenerate the adenohypophysis?
A) gonadotropocytes
B) chromophobic cells of the adenohypophysis
C) follicular-stellate cells
D) thyrotropocytes
E) pinealocytes

71. Highlight, the specificity of the action of hormones is determined by ...
A) the half-life of the hormone in the vascular bed
B) the presence of hormone receptors in cells
C) the nature of the endothelium of blood capillaries in the target tissue
D) the concentration of the hormone in the blood
E) the rhythm of hormone secretion by the endocrinocyte

72. Choose, thyrocytes secrete is...
A) thyroid-stimulating hormone
B) thyroxine
C) parathyrin

D) calcitonin
E) serotonin

73. Name, calcitoninocytes of the thyroid gland secrete ...
A) parathyrin
B) calcitonin
C) thyroid-stimulating hormone
D) somatotropic hormone
E) prolactin

74. Specify what function does the adrenal cortex perform?
A) synthesizes corticosteroids
B) synthesize catecholamines
C) carries out the absorption of vitamins
D) performs antigen-independent differentiation of T-lymphocytes
E) synthesizes thyroid-stimulating hormone

75. X-ray examination of the bones of the base of the skull revealed an increase in the cavity of the Turkish saddle, thinning of the anterior oblique processes, destruction of different sections, destruction of different sections of the Turkish saddle. Choose which endocrine gland tumor can cause such bone destruction?
a) pituitary gland;
b) thymus gland;
c) thyroid gland;
d) adrenal glands;
e) epiphysis

76. Epithelial strands consisting of chromophilic (acidophilic, basophilic) and chromophobic cells are detected in the histological preparation of the endocrine gland. Determine which organ is represented in the preparation?
a) adenohypophysis;
b) neurohypophysis;
c) thyroid gland;
d) adrenal glands;
e) epiphysis

77. Specify which large-cell neurosecretory nuclei of the hypothalamus include:
A) ventromedial
B) arcuate
C) supraoptic
D) dorsomedial
E) periventricular

78. Choose, the specificity of the action of hormones depends on:
A) chemical composition
B) blood concentrations
C) binding to the carrier protein
D) metabolic rates in tissues
E) the presence of receptors on target cells

79. A parenchymal organ is determined on a histological preparation. The structural and functional unit of which is the follicle. The follicle wall is formed by cubical cells, the follicle cavity is filled with a colloid. Choose which organ is represented in the preparation?
a) pituitary gland;
b) ovary;
c) thyroid gland;
d) adrenal glands;

e) testes

80. Indicate, if there is a lack of iodine in the body, the formation of hormones is disrupted:
A) the epiphysis
B) adenohypophysis
C) the adrenal glands
D) thyroid gland
E) parathyroid glands

81. From the ectodermal epithelium of the lining of the upper part of the oral fossa of the human embryo, a Ratke pocket is formed, which is directed to the base of the future brain. Specify what develops from this embryonic germ?
a) Anterior hypothalamus;
b) Adenohypophysis;
c) Medial elevation;
d) Neurohypophysis;
e) Pituitary pedicle

82. Choose, the thyroid gland is formed from:
A) mesenchyma
B) neuroblasts of nerve crests
C) pharyngeal epithelium
D) skin ectoderm

83. Indicate whether the microcirculatory bed of the endocrine glands is characterized by the presence of:
A) sinusoidal capillaries
B) fenestrated endothelium in capillaries
C) developed pericapillary spaces
D) precapillary sphincters

84. Finish the definition. Herring's accumulative corpuscles in the neurohypophysis are:
A) the endings of gliocyte processes on the basal membranes of blood vessels
B) clusters of pituitary
C) dilated and overflowing with blood hemocapillaries
D) axon terminals with neural secret

85. What function does the adrenal medulla perform?
A) carries out the absorption of vitamins
B) synthesizes corticosteroids
C) synthesizes catecholamines
D) performs antigen-independent differentiation of T-lymphocytes
E) synthesizes thyroid-stimulating hormone

86. The histopreparation presents parenchymal organs having cortical and cerebral substance. The cortical is formed by strands of epithelial cells, between which blood capillaries pass. The strands form three zones. The medulla consists of chromaffinocytes and venous sinusoids. Determine which organ has these morphological features?
a) kidney;
b) lymph node;
c) thyroid gland;
d) adrenal glands;
e) thymus

87. The patient was given high doses of hydrocortisone for a long time, as a result of which atrophy of one of the zones of the adrenal cortex occurred. Specify which zone is this?
a) fasicular;
b) reticular;

c) glomerular;
d) glomerular and reticular;

88. When examining one of the adrenal glands removed during surgery, large cells were found that were impregnated with a solution of potassium bicarbonate. Choose which hormone these cells synthesize?
a) Cholecystokinin;
b) Aldosterone;
c) Thyroxine;
d) Adrenaline;
e) thymosin.

89. In the wall of the follicles and in the interfollicular layers of connective tissue on the territory of the thyroid gland, large endocrinocytes are placed, the secretory granules of which are osmium and argyrophilic. Name these cells?
a) Pinealocytes;
b) Pituicites;
c) Calcitoninocytes;
d) Thyrocytes;
e) Parathyrocytes.

90. The parenchyma of the adenohypophysis is represented by trabeculae formed by glandular cells. Among the adenocytes there are cells with granules that are stained with basic dyes and contain glycoproteins. What are these cells?
a) Somatotropocytes;
b) Mammotropocytes;
c) Chromophobic;
d) Gonadotropocytes, thyrotropocytes;
e) Melanotropocytes.

91. In the endocrinology department, the patient was diagnosed with acromegaly. Choose the hyperfunction of which pituitary cells is caused by this disease?
a) Thyrotropocytes;
b) Somatotropocytes;
c) Chromophobic;
d) Gonadotropocytes;
e) Mammothropocytes.

92. A 50-year-old male farm worker has been brought to the emergency room. He was found confused in the orchard and since then has remained unconscious. His heart rate is 45 and his blood pressure is 80/40 mm Hg. He is sweating and salivating profusely. Which of the following should be prescribed?
a) Norepinephrine, b) Physostigmine, c) Pentamine d) Atropine e) Proserine

93. A patient has been given high doses of hydrocortisone for a long time. This caused atrophy of one of the adrenal cortex zones. Which zone is it? a) zona fasciculata b) zona reticularis c) zona glomerulosa and zona reticularis d) zona glomerulosa

94. Select the hormones produced by the oxyphilic cells of the adenohypophysis
a) oxytocin, vasopressin; b) somatotropin, prolactin c) thyrotropic
d) gonadotropic e) corticotropic

95. Identify what pinealocytes synthesize
a) thyrotropin b) calcitonin c) oxytocin d) melatonin, serotonin e) prolactin

96. State what determines the specificity of hormone action
a) half-life of the hormone in the vascular system
b) presence of hormone receptors on target cells
c) nature of endothelium of blood capillaries in target tissue

d) hormone concentration in blood
e) rhythm of hormone secretion by endocrinocytes

97. A patient has sharply increased daily urine output. What hypothalamic hormone secretion deficiency could explain this phenomenon?
a) oxytocin b) melatonin c) vasopressin d) serotonin e) prolactin

98. An animal has had its thyroid gland removed. Determine the hypertrophy of which pituitary gland cells will be found in the animal?
a) basophilic endocrinocytes b) chromophilic cells c) oxyphilic endocrinocytes
d) pinealocytes e) follicular cells

99. What is the function of the adrenal cortex?
a) synthesizes corticosteroids
b) synthesizes catecholamines
c) performs vitamin absorption
d) performs antigen-independent differentiation of T-lymphocytes
e) synthesizes thyroid hormone

100. Determine what makes up the hypothalamic-neurohypophyseal system
a) hypothalamic arcuate complex and median eminence
b) adenohypophysis and hypothalamus
c) hypothalamus and thyroid gland
d) supraoptic and paraventricular nuclei and posterior pituitary lobe
e) supraoptic and paraventricular nuclei and medial elevation

DIGESTIVE SYSTEM

101. Crypts are detected in the histological preparation of the palatine tonsil, the epithelium of which is infiltrated by leukocytes. Specify which epithelium is part of this organ?
a) stratified squamous non-keratinizing;
b) stratified cubic;
c) stratified ciliated;
d) stratified squamous keratinizing;
e) simple prismatic.

102. A patient visited a dentist with complaints of redness and edema of his mouth mucous membrane in a month after dental prosthesis. The patient was diagnosed with allergic stomatitis. What type of allergic reaction by Gell and Cumbs underlies this disease?
a) Cytotoxic b) Anaphylactic, c) Stimulating
d) Delayed type hypersensitivity e) Immunocomplex.

103. When the pH level of the stomach lumen decreases to less than 3, the antrum of the stomach releases peptide that acts in paracrine fashion to inhibit gastrin release. This peptide is:
a) Gastrin-releasing peptide (GRP) b) Acetylcholine c) GIF
d) Somatostatin e) Vasoactive intestinal peptide (VIP)

104. Examination of a 43 y.o. patient revealed that his stomach has difficulties with digestion of protein food. Gastric juice analysis revealed low acidity. Function of which gastric cells is disturbed in this case?
a) Endocrine cells b) Neck cells c) Main exocrinocytes
d) Mucous cells (mucocytes) e) Parietal exocrinocytes

105. In the histological preparation of the glandular organ, only the serous terminal sections are determined. In the interlobular connective tissue, ducts lined with a two-layer or multi-layer epithelium are visible. Identify this organ?
a) parotid gland;
b) pancreas;
c) liver;

d) sublingual salivary gland;
e) submandibular salivary gland

106. Specify what is secreted by the main exocrinocytes of the stomach?
A) hydrochloric acid
B) pepsinogen
C) serotonin
D) mucus
E) somatostatin

107. Choose which cells are missing in the glands of the stomach?
A) the main
B) lining
C) mucous membranes
D) G-cells
E) A-cells

108. What cells are missing in intestinal crypts?
A) columnar epithelial cells
B) undifferentiated epithelial cells
C) goblet cells
D) Paneta acidophilic cells
E) parietal cells

109. On electronic micrographs of the stomach's own gland, a large oval-shaped cell is determined, in the cytoplasm of which a system of intracellular secretory tubules, a large number of mitochondria are visible. Name this cell?
a) parietal;
b) exocrine;
c) undifferentiated;
d) main;
e) mucous.

110. In inflammatory diseases of the stomach, the integumentary epithelium of the mucous membrane is damaged. Choose which epithelium suffers at the same time?
a) simple columnar glandular;
b) simple cubic;
c) stratified cubic;
d) simple flat;
e) simple cubic microvilli.

111. In diseases of the mucous membrane of the small intestine, the absorption function suffers. Name which epithelium is responsible for this function?
a) simple columnar glandular with a brush-border;
b) simple cubic;
c) stratified cubic;
d) simple flat;
e) simple cubic microvilli

112. When examining a patient with a small intestine disease, violations of the processes of parietal and membrane digestion were revealed. With the violation of the function of which cells is this associated?
a) goblet-shaped;
b) columnar epithelium with a brush-border;
c) endocrinocytes;
d) Paneta cells;
e) columnar without a border

113. During endoscopic examination in a patient with chronic enterocolitis (inflammation of the intestine), there is a lack of specific structures of the relief of the small intestine. Determine which components determine the features of the relief of the mucous membrane of this organ?
a) gausters, villi, crypts;
b) fields, folds, pits;
c) circular folds, villi and crypts;
d) oblique-spiral folds;
e) margins, villi.

114. During the examination of the patient, an anomaly of liver development was revealed. Please indicate which embryonic source has been damaged?
a) endoderm of the posterior intestine;
b) endoderm of the middle part of the primary intestine;
c) endoderm of the anterior intestine;
d) endoderm of the posterior wall of the trunk intestine;
e) mesonephral strait

115. Select, Paneta cells…
A) lysozyme is isolated
B) cholecystokinin is isolated
C) amylase is isolated
D) lipase is isolated
E) secrete serotonin

116. A patient with chronic enterocolitis (inflammation of the intestine) revealed disorders of digestion and absorption of proteins in the small intestine due to a lack of dipeptidases in intestinal juice. Determine in which cells the synthesis of these enzymes is disrupted?
a) goblet-shaped;
b) columnar with a border;
c) endocrinocytes;
d) Paneta cells;
e) columnar without a border.

117. Name, perisinusoidal lipocytes are also called …
A) Kupfer cells
B) pit cells
C) Ito cells
D) Golgi cells
E) Merkel cells

118. Specify whether the composition of pancreatic juice includes…
A) glucagon
B) insulin
C) trypsinogen
D) somatostatin
E) pancreatic polypeptide

119. Determine if the pitelium in the middle part of the esophagus is:
A) single-layer flat
B) stratified squamous non-keratinizing epithelium
C) keratinizing
D) multi-row
E) edged

120. What is characteristic of the structure of the liver?
A) blood from the sinus capillaries enters the interlobular vein
B) blood flows from the liver through the portal vein

C) the hepatic veins enter through the liver gate
D) hepatocytes have two free surfaces
E) hepatocytes lie on the basement membrane

121. During histological examination of the stomach it was found out that glands contain very small amount of parietal cells or they are totally absent. Mucose membrane of what part of the stomach was studied
a) Cardiac part b) Fundus of stomach c) Pyloric part d) Body of stomach

122. A 2-year-old child has got intestinal dysbacteriosis, which results in hemorrhagic syndrome. What is the most likely cause of hemorrhage of the child?
a) PP hypovitaminosis b) Activation of tissue thromboplastin c) Vitamin K insufficiency
d) Fibrinogen deficiency e) Hypocalcemia

123. Some diseases of the small intestine are associated with impaired function of exocrinocytes with acidophilic granules (Paneta cells). Specify where these cells are located?
a) on the lateral surfaces of intestinal villi;
b) in the upper part of the intestinal crypts;
c) at the junction of the villi in the crypt;
d) on the apical part of the intestinal villi;
e) at the bottom of intestinal crypts.

124. In some diseases of the colon, the quantitative ratios between the epithelial cells of the mucosa change. What are the types of cells that predominate in the epithelium of the crypts of the colon normally?
a) goblet cells;
b) endocrinocytes;
c) poorly differentiated cells;
d) cells with acidophilic granules;
e) columnar villous epithelial cells.

125. Rectoromanoscopy revealed a tumor emanating from the mucosa of the intermediate rectum. Choose from which epithelium this tumor was formed?
a) simple columnar epithelium with a border;
b) simple cuboidal epithelium;
c) stratified squamous non-keratinizing
d) simple squamous epithelium;
e) simple cuboidal ciliated epithelium.

126. During the examination of the patient, an anomaly of liver development was revealed. Please indicate which embryonic source has been damaged?
a) endoderm of the posterior intestine;
b) endoderm of the middle part of the primary intestine;
c) endoderm of the anterior intestine;
d) endoderm of the posterior wall of the trunk intestine;
e) mesonephral strait.

127. With the proliferation of connective tissue in the liver parenchyma (fibrosis) due to chronic diseases, there is a violation of blood circulation in the classical lobules. Determine which direction of blood flow in such lobules?
a) around the lobule;
b) from the center to the periphery;
c) from the periphery to the center;
d) from the top to the base;
e) from the base to the top.

128. Histological examination of the aspiration biopsy of the gastric mucosa in a patient suffering from peptic ulcer revealed an increase in the number of glandulocytes having oxyphilic properties of the cytoplasm. Determine the formation of which component of gastric juice these cells provide?
a) mucus;
b) gastrin;
c) secretin;
d) hydrochloric acid;
e) pepsinogen.

129. In people who are prone to excessive consumption of sweets, certain cells of the pancreas are constantly in a state of tension. Specify which ones?
a) D-cells;
b) A-cells;
c) B-cells;
d) Acinose-insular;
e) PP-cells.

130. In the histopreparation of the small intestine, villi covered with tissue consisting only of cells forming a layer that is located on the basement membrane are determined. The tissue does not contain blood vessels. Choose which tissue covers the surface of the villi?
a) epithelial tissue;
b) dense unformed connective tissue;
c) reticular tissue;
d) smooth muscle tissue;
e) loose fibrous connective tissue.

131. The histological preparation presents an organ of the digestive tract, the wall of which consists of 4 membranes: mucous, submucosal, muscular and serous. The mucous membrane has folds and pits. Determine which organ has this relief?
a) stomach;
b) esophagus;
c) small intestine;
d) vermiform process;
e) duodenum.

132. The histopreparation presents a section of the wall of the digestive tube organ, the relief of the mucous membrane of which is represented by pits. The surface of the pits is covered with epithelium, in which all the cells lie on the basement membrane, have a prismatic shape, the apical part of the cells is filled with drops of mucoid secretion. Determine which organ has this epithelium?
a) stomach;
b) esophagus;
c) small intestine;
d) vermiform process;
e) colon.

133. The histopreparation presents an organ, in its own plate of the mucous membrane of which there are simple tubular glands, consisting mainly of the main and parietal, as well as mucous, cervical endocrine cells. Specify the type of glands?
a) cardiac glands of the esophagus;
b) the fundus glands;
c) the cardiac glands of the stomach;
d) pyloric glands of the stomach;
e) esophageal glands.

134. The histopreparation contains iron. Acinuses are determined in the lobules, the secretory cells of which have two zones: basal-homogeneous basophilic and apical-zymogenic oxyphilic. Choose which organ has these key morphological features?

a) submandibular salivary gland;
b) sublingual salivary gland;
c) liver;
d) parotid salivary gland;
e) the pancreas.

135. In the histopreparation, parenchymal organs are determined, the structural and functional unit of which are lobules. The latter have fuzzy boundaries, there is a central vein inside, radially directed beams, intra-lobular sinusoidal capillaries. The lobule is bounded by interlobular arteries, veins and bile ducts (triad). Specify which organ these morphological features belong to?
a) main cells;
b) parietal cells;
c) cervical cells;
d) endocrine cells

136. The patient was admitted to a therapeutic clinic. A decrease in the acidity of gastric juice has been established in the laboratory. Specify which cells of the gastric glands caused this condition?
a) Parietal cells;
b) Cervical cells;
c) Mucous membranes;
d) Main cells;
e) Endocrine.

137. Morphological analysis of biopsy material of the esophageal mucosa taken from the patient revealed the process of keratinization of the epithelium. Highlight which of the following types of epithelium covers the mucous membrane of this organ normally?
a) Pseudostratified ciliated;
b) Simple squamous ngle-layer flat;
c) Stratified squamous non-keratinizing
d) Simple columnar;
e) Stratified squamous keratinizing.

138. A patient with poisoning was hospitalized in the clinic. It has been established that detoxification mechanisms are disrupted in the liver. Determine which of the hepatocyte organelles caused this condition in the first place?
a) mitochondria;
b) Golgi apparatus;
c) granular EPS;
d) agranular EPS;
e) ribosome

139. In a cancer patient after radiation therapy, morphological examination revealed a significant violation of the regeneration process of the epithelial layer of the mucous membrane of the small intestine. Determine which epithelial cells are damaged?
a) goblet-shaped;
b) columnar with a border;
c) endocrinocytes;
d) Paneta cells;
e) columnar without a brush-border.

140. An infectionist doctor revealed in a syndrome of acute enterocolitis with a violation of the process of digestion and absorption of cleavage products in a patient. Specify, when the intestinal epithelial cells are damaged, such violations are observed?
a) goblet-shaped;
b) columnar with a border;
c) endocrinocytes;
d) Paneta cells;

e) columnar without a brush-border.

141. A patient aged 50 years complains of increased appetite, thirst, weight loss, fatigue. Laboratory examination revealed an increase in the amount of sugar in the blood. Choose which cell dysfunction is associated with the development of this disease?
a) D-cells;
b) A-cells;
c) B-cells;
d) Acinous-insular;
e) PP cells.

142. On a histological preparation, the submucosal base of the small intestine is filled with the final secretory sections of the protein glands. Which part of the intestine is represented on the drug?
a) Ileum;
b) Appendix;
c) Duodenum ;
d) Jejunum;
e) Colon.

143. In the histological preparation, the parenchyma of the organ is represented by lobules that have the shape of hexagonal prisms and consist of anastomosing plates, between which lie sinusoidal capillaries radially converging to the central vein. Determine which anatomical organ has this morphological structure?
a) thymus;
b) pancreas;
c) liver;
d) spleen;
e) lymph node.

144. A patient, 30 years old, went to the doctor with complaints of an increase in body temperature to thirty-eight degrees, weakness, sore throat. During the examination, it turned out that the patient's tongue was covered with a white coating. Specify which histological structures of the tongue are involved in the formation of this plaque?
a) The epithelium of the fungal papillae;
b) Epithelium of the leaf-like papillae;
c) Epithelium of filiform papillae;
d) The epithelium of the grooved papillae;
e) Connective tissue basis of all papillae of the tongue.

145. A gland consisting of several secretory compartments in the form of sacs, which open into one common excretory duct, was found in the micropreparation. What kind of gland is this?
a) Simple branched alveolar;
b) Simple unbranched alveolar;
c) Simple branched tubular;
d) Complex unbranched alveolar;
e) Complex branched alveolar.

146. In the histological preparation, the mucous membrane is determined, covered with a multi-layered flat non–keratinizing, in places - a multi-layered flat keratinizing epithelium. The composition of the mucous membrane also includes its own plate, there is no muscle plate. Determine the location of such a mucous membrane?
a) Small intestine;
b) Esophagus;
c) Oral cavity;
d) Trachea;
e) Stomach.

147. In the histological preparation, an organ is determined, the basis of which is skeletal striated muscle tissue. The organ has cutaneous, intermediate and mucous divisions. Epithelium – multilayered flat keratinizing in the mucous department turns into a multilayered flat non-keratinizing. Name this body?
a) Tongue;
b) Lip;
c) Cheek;
d) Hard palate;
e) Gum.

148. In the histological preparation, the muscular formation of the oral cavity is visible, consisting of two sections: the cutaneous and mucous, in which the upper, intermediate and lower zones are distinguished. In the intermediate zone of the mucous department, the epithelium is multilayered, flat, keratinizing. Determine which formation is represented in the preparation?
a) Tongue;
b) Lip;
c) Cheek;
d) Hard palate;
e) Gum.

149. The histological preparation determines the formation of the oral cavity, which is based on bone tissue. It is covered with a mucous membrane, in which a multilayer flat keratinizing epithelium is visible. In education, fatty, glandular and marginal zones are distinguished. In all zones of the own plate of the mucous membrane, collagen fibers form powerful bundles woven into the periosteum. What kind of education is represented in the preparation?
a) Tongue;
b) Lip;
c) Cheek;
d) Hard palate;
e) Gum.

150. Select, the muscle plate of the mucous membrane is determined in:
A) lip
B) cheek
C) gum
D) esophagus
E) tongue

151. Specify what secret the parotid gland secretes?
A) muco-protein
B) protein
C) protein-mucous
D) slimy
E) greasy

152. Determine whether the mobility of the mucous membrane on the lower surface of the tongue is provided by:
A) the epithelium of the mucous membrane
B) own record
C) muscle plate
D) submucosal base
E) muscle membrane

153. Specify whether the bodies of odontoblasts are located in:
A) dentine
B) predentine
C) cement
D) pulp

E) enamels

154. Specify where the esophageal glands are located?
A) mucosal epithelium
B) own plate of the mucous membrane
C) muscle membrane
D) submucosal basis
E) adventitious shell

155. Explain how the serous membrane differs from the adventitious one:
A) the absence of blood vessels
B) the presence of nerve elements
C) lack of glands
D) the presence of mesothelium
E) an abundance of adipose tissue

156. Choose in which part of the intestine the glands meet in the submucosal base:
A) the vermiform process
B) the colon
C) jejunum
D) duodenum
E) the ileum

157. Specify which cells in the glands of the stomach produce pepsinogen:
A) the main
B) parietal
C) neck
D) endocrine
E) mucocytes

158. Indicate whether the cambial cells in the epithelium of the small intestine are:
A) edged enterocytes of villi
B) capless crypt enterocytes
C) goblet-shaped enterocytes
D) apical-granular enterocytes
E) endocrinocytes

159. List, smooth myocytes in the muscular lining of the stomach form:
A) one longitudinal layer
B) one transverse layer
C) two layers — longitudinal and transverse
D) three layers - longitudinal, transverse and oblique
E) four layers alternating longitudinally and transversely

160. Give a definition. The villi of the small intestine are:
A) outgrowths of the mucous membrane
B) outgrowths of the integumentary epithelium
C) a set of microvilli
D) folds of the mucous and submucosal membranes

161. Indicate the source of the development of the epithelial lining of the stomach is:
A) ectoderm
B) endoderm of the intestinal tube
C) mesoderm
D) mesenchyme
E) chorion

162. Classify the glands of the bottom of the stomach:
A) simple branched alveolar
B) simple tubular unbranched
C) complex branched tubular
D) simple unbranched alveolar
E) complex unbranched tubular

163. Determine the distinctive features of the jejunum
A) villi
B) complex glands in the own plate of the mucosa
C) crypts
D) pits

164. Choose, intestinal peristalsis is caused by:
A) movement of the villi
B) contractions of the muscular membrane
C) the presence of folds
D) signals from the musculoskeletal plexus

165. Specify where in the hepatic lobules the perisinusoidal (Disce) space is located
a) between hepatic beams
b) inside the beams
c) between hepatocytes
d) between sinusoid capillaries and beams

166. Identify what pancreatic islet D-cells produce
a) insulin
b) glucagon
c) somatostatin
d) vasoactive polypeptide

167. Indicate whether the presence of white plaque on the tongue is associated with impaired rejection of horny scales on the apex of
a) foliate papillae
b) fungiform papillae
c) filiform papillae
d) circumvallate papillae

168. Identify the type of esophageal glands
a) simple branched alveolar mucous membranes
b) complex branched alveolar-tubular mucous glands
c) complex branched alveolar-tubular proteinous
d) simple unbranched tubular protein

169. Specify which organ is characterized by villi, crypts, glands in submucosa
a) esophagus
b) the stomach
c) duodenum
d) jejunum
e) ileum

170. Choose what the mucous membrane consists of
a) epithelium, muscularis mucosae, submucosa
b) epithelium, lamina propria, adventitia
c) epithelium, lamina proria, muscularis mucosae
d) epithelium, submucosa, adventitia

RESPIRATORY SYSTEM. SKIN AND IT'S APPENDEGES

171. Indicate whether the embryonic source of lung development is ...
A) the dorsal wall of the primary intestine
B) the ventral wall of the primary intestine
C) the parietal leaf of the splanchnotome
D) visceral splanchnotome leaf
E) ectoderm

172. Select, the epithelium of the tracheal mucosa ...
A) single-layer flat
B) multilayer flat
C) single-row prismatic
D) cubic
E) pseudostratified ciliated

173. Identify which epithelial cells of the trachea and bronchi produce mucus?
A) secretory
B) bordered
C) goblet-shaped
D) endocrine
E) basal

174. Specify whether goblet cells synthesize ...
A) surfactant components
B) mucus
C) serotonin
D) dopamine
E) adrenaline

175. Lung of premature infant is presented on electronic photomicrography of biopsy material. Collapse of the alveolar wall caused by the deficiency of surfactant was revealed. Disfunction of what cells of the alveolar wall caused it?
a) Fibroblasts b) Alveocytes type II c) Alveolar macrophages
d) Alveocytes type I e) Secretory cells

176. A patient was admitted to the hospital with an asphyxia attack provoked by a spasm of smooth muscles of the respiratory tracts. This attack was mainly caused by alterations in the following parts of the airways:
a) Respiratory part b) Small bronchi c) Large bronchi
d) Median bronchi e) Terminal bronchioles

177. Explain, the terminal sections of which glands are located in the submucosal base of the trachea ...
A) protein
B) mucous membranes
C) endocrine
D) protein-mucosal
E) synthesizing surfactant

178. Specify which of the bronchi contains glands and cartilage in the form of islands in its wall?
A) the main
B) bronchus of the 1st order
C) bronchus of the 2nd order
D) bronchus of the 3rd order
E) small bronchus

179. Determine which sections of the airways are most capable of changing the lumen?

A) larynx
B) trachea
C) medium-caliber bronchus
D) small-caliber bronchus
E) bronchiola

180. Specify which epithelium is lined with the mucosa of the terminal bronchiole?
A) single-layer flat
B) two-row prismatic
C) multi-row flickering
D) simple cuboidal ciliated
E) single-row prismatic

181. An employee of chemical production after inhaling caustic vapors had the death of a part of the ciliated epithelial cells of the bronchi. Determine which cells will regenerate this epithelium?
A) ciliated cells;
b) non-ciliated cells;
c) goblet cells;
d) endocrine cells;
e) basal cells;

182. In the histological preparation of the trachea, low oval or triangular cells are visible as part of the multi-row ciliated epithelium. They do not reach the apical surface of the epithelium with their apex, mitosis figures are visible in part of the cells. Tell me what function these cells perform?
a) are a source of regeneration;
b) secrete mucus;
c) produce biologically active substances;
d) secrete surfactant;
e) are part of the mucociliary complex;

183. The patient was admitted to the department with an attack of suffocation caused by a spasm of the smooth muscles of the respiratory tract. What are the departments of the airways with which this attack is mainly associated?
a) respiratory department;
b) small-caliber bronchi;
c) large-caliber bronchi;
d) medium-caliber bronchi;
e) terminal bronchioles;

184. The preparation contains a hollow organ. The mucous membrane is covered with a double-row ciliated epithelium, which turns into a single-row one. The muscular plate of the mucosa is well developed in relation to the thickness of the entire wall. There is no cartilage and glands. Determine which organ is represented in the preparation?
a) larynx;
b) bladder;
c) middle bronchus;
d) trachea;
e) small bronchus;

185. As a result of the pathological process in the bronchi, desquamation of the epithelium occurs. Choose which cells will regenerate the bronchial epithelium?
A) ciliated cells;
b) insertion cells;
c) goblet cells;
d) endocrine cells;
e) basal cells;

186. Upon autopsy of a deceased 65-year-old man who suffered from lung disease, the pathological process was mainly localized in the bronchi, where the glands, cartilaginous islands and a multi-row cylindrical ciliated epithelium were clearly visible during histological examination. Indicate in which bronchi changes were detected?
a) terminal bronchioles;
b) medium bronchi;
c) large bronchi;
d) main bronchi;
e) small bronchi;

187. When examining a patient with diphtheria, changes in the soft palate and tongue were revealed. Which epithelium was injured at the same time?
a) stratified squamous non-keratinizing
b) multilayer cubic;
c) multi-row ciliated;
d) multilayer flat keratinizing;
e) single-layer prismatic.

188. A patient with acute rhinitis has hyperemia and increased mucus formation in the nasal cavity. Which mucosal epithelial cells are more active?
a) ciliated cells;
b) microvilli cells;
c) goblet cells;
d) endocrine cells;
e) basal cells;

189. Electronic microphotographs of biopsy material show the lung of a premature baby. The collapse of the alveolar wall was detected due to the absence of surfactant. Specify the dysfunction of which cells of the alveolar wall cause this picture?
a) fibroblasts;
b) type II alveolocytes;
c) alveolar macrophages;
d) type I alveolocytes;
e) secretory cells;

188. It is known that an important component of the aerogematic barrier is the surfactant alveolar complex, which prevents alveolar subsidence during exhalation. Choose which alveolar cells synthesize phospholipids that go to build surfactant membranes?
a) respiratory cells;
b) type II alveolocytes;
c) alveolar macrophages;
d) capillary endothelium;
e) bordered epithelial cells;

189. Indeed, diphtheria croup occurs as a result of the deposition of fibrin films firmly connected with the epithelium on the real vocal cords. Specify which of the following types of epithelium is lined with the mucous membrane of these vocal cords?
a) stratified squamous non-keratinizing
b) multilayer cubic;
c) multi-row ciliated;
d) multilayer flat keratinizing;
e) single-layer flat.

190. The histological preparation presents an organ whose wall consists of mucous, submucosal, fibrous-cartilaginous and adventitial membranes. The epithelium is multi-row ciliated. Mucosal-protein glands are located in the submucosal base. Hyaline cartilage forms large plates. Choose which organ has these morphological features?

a) esophagus;
b) large bronchus;
c) larynx;
d) small bronchus;
e) trachea;

191. Electronic micrographs of biopsy material show structures that include surfactant, type I alveolocytes, basement membrane and fenestrated capillary endothelium. Determine which histo-hematic barrier in the human body these structures belong to?
a) aerogematic;
b) hematothymus;
c) hematotesticular;
d) hematolytic;
e) blood-brain;

192. In the histological preparation of the airways, the integumentary epithelium contains ciliated and goblet-shaped cells that form a mucociliary complex. Specify which function belongs to this complex?
a) hormone secretion;
b) humidification of the air;
c) respiratory;
d) air purification from dust particles;
e) air warming;

193. The electronic micrograph shows structures in the form of open bubbles, the inner surface of which is lined with a single-layer epithelium, which is formed by respiratory and secretory cells. What are these structures?
a) Bronchioles;
b) Alveolar passages;
c) Terminal bronchi;
d) Alveoli;
e) Acinuses;

194. In the epithelium of the airways there are cells with a domed apecal part, on the surface of which microvilli are placed. The synthetic apparatus is well developed in the cell, and secretory granules are in the apical part. Name this cell?
a) A cage without a border;
b) Cambial;
c) Goblet-shaped;
d) Clara cell;
e) Endocrine;

195. Premature infants develop respiratory failure syndrome. Specify the insufficiency of which component of the aerogematic barrier underlies this pathology?
a) The basement membrane of the endothelium;
b) The endothelium of the capillaries;
c) Surfactant;
d) The basement membrane of alveolocytes;
e) Alveolocytes;

196. Determine if pulmonary acinus begins ...
A) terminal bronchiola
B) respiratory bronchiola
C) alveolar course
D) small bronchus
E) alveolar sacs

197. List, pulmonary acinus form:

A) a group of terminal bronchioles
B) one terminal bronchiole and two respiratory
C) alveolar passages
D) vestibules and alveolar sacs,
E) respiratory bronchioles, alveolar passages and alveolar sacs

198. Choose which cells produce surfactant?
A) Type 1 alveocytes
B) endocrine cells
C) Type 2 alveocytes
D) macrophages
E) goblet-shaped

199. Find out which structure of the respiratory system is lined with mesothelium?
A) larynx
B) trachea
C) bronchi
D) pleura
E) lungs

200. Specify which epithelial cells of the bronchial mucosa produce
a mucous secret rich in hyaluronic and sialic acids?
A) basal
B) endocrine
C) goblet-shaped
D) bordered
E) unbranched

201. Choose which cells are found in the epithelium of the bronchial mucosa, but are not present in the epithelium of the nasal cavity
A) ciliated
B) endocrine
C) Clara cells
D) basal
E) goblet-shaped

202. What is the epithelium covering the lungs from the outside?
A) mesothelium
B) ciliated epithelium
C) connective tissue capsule
D) multilayer squamous epithelium
E) elastic membrane

203. Specify, the epiglottis mucosa is lined with epithelium:
A) single-layer flat
B) stratified squamous
C) multi-row ciliated
D) multi-row on the larynx side and multi-layered on the pharynx side
E) transitional

204. Indicate if the paranasal sinuses are lined:
A) adventitious shell
B) periosteum
C) a mucous membrane with a multilayered squamous epithelium
D) mucous membrane pseudostratified ciliated epithelium
E) serous membrane

205. Specify the cells involved in the secretion of surfactant components:
A) hemocapillary endotheliocytes
B) epithelial cells of terminal bronchioles
C) respiratory alveolocytes
D) secretory alveolocytes

206. Choose whether the true vocal cords contain:
A) stratified squamous epithelium
B) stratified epithelium
C) striated muscle tissue
D) bundles of smooth myocytes

207. Specify, respiratory bronchioles are lined with ...
A) stratified squamous keratinizing epithelium
B) stratified ciliated epithelium
C) simple cuboidal epithelium
D) simple double-row epithelium
E) stratified squamous non keratinizing epithelium

208. In the interalveolar septa of the lungs are:
A) collagen fibers
B) elastic fibers
C) fibroblasts
D) macrophages
E) everything is true

209. Choose which tissue forms the papillary layer of the skin?
A) dense connective tissue
B) loose connective tissue
C) dense decorated
D) reticular
E) lymphoid

210. Specify, melanocytes are formed from ...
A) neural tube
B) ectodermal placodes
C) neural crest
D) dermatoma
E) mesenchyma

211. Specify in which layer of the epidermis the cambial cells for keratinocytes are located?
A) granular
B) Brilliant
C) basal
D) horny
E) spiky

212. Choose from the dermatome develop ...
A) skin epithelium
B) hair
C) mammary glands
D) connective tissue of the skin
E) sebaceous glands

213. Determine whether melanocytes connect with each other using ...
A) synapses
B) nexuses

C) desmosis
D) half-cosmos
E) lie freely

214. Name what hair develops from?
A) mesenchyma
B) the mesh layer of the dermis
C) the papillary layer of the dermis
D) epidermis
E) connective tissue

215. Name which cells the epithelium of the sebaceous glands consists of?
A) myocytes
B) endocrinocytes
C) serocytes
D) mucocytes
E) sebocytes

216. Specify in which layer of the skin are the end sections of the sebaceous glands located?
A) thorny
B) sprouts
C) basal
D) papillary
E) reticular

217. Name, the growth of the hair occurs due to the cells ...
A) the cuticle of the hair
B) hair bag
C) hair follicles
D) the brain matter of the hair
E) the cortical substance of the hair

218. Choose, the muscle that lifts the hair consists of ...
A) collagen fibers
B) elastic fibers
C) smooth muscle cells
D) myofibrils
E) reticular fibers

219. Specify the type of sebaceous glands secreted?
A) autocrine
B) apocrine
C) paracrine
D) merocrine
E) Holocrine

220. Which cells form skin pigment and give a positive reaction to DOPA oxidase?
A) Merkel cells
B) Langerhans cells,
C) keratinocytes
D) Schwann cells
E) melanocytes

221. Choose which structures are missing in the skin?
A) sweat glands
B) melanocytes
C) sebaceous glands

D) papillary dermis layer
E) photosensory layer of cells

222. Indicate whether the intermediate filaments of epithelial cells consist of ...
A) actin
B) keratin
C) desmina
D) tubulin
E) vimentina

223. In the histological preparation of a biopsy of the epidermis of the skin of a healthy adult, dividing cells are visible in the basal layer. Choose which process these cells provide?
a) apoptosis;
b) physiological regeneration;
c) adaptation;
d) differentiation;
e) reparative regeneration.

224. During wound healing, a connective tissue scar develops in the area of a skin tissue defect. Which cells provide this process?
a) melanocytes;
b) fibroblasts;
c) fibrocytes;
d) macrophages;
e) mast cells.

225. An alien body got into the skin, which led to inflammation. Specify which connective tissue cells are involved in the skin's reaction to a foreign body?
a) melanocytes;
b) macrophages;
c) neutrophils, macrophages, fibroblasts;
d) lipocytes;
e) adventitious cells.

226. The study of fingerprints of the epidermis of the fingers [fingerprinting] is used in criminology to identify individuals, as well as to diagnose genetic abnormalities, in particular Down's disease. Which layer of skin determines the individuality of the prints?
a) basal;
b) reticular;
c) papillary;
d) shiny;
e) horny.

227. One of the rules of surgery is to make incisions along the so-called Langer lines (skin tension lines). Which of the following tissues forms a strong mesh layer of the dermis?
a) epithelial;
b) dense decorated connective tissue;
c) reticular connective tissue;
d) loose fibrous connective tissue;
e) dense irregular connective tissue

228. Patient A., 12 years old, has white spots on the skin that do not have pigment. Spots appeared after 10 years, constantly increasing in size. Name the absence of which skin cells led to the appearance of such spots?
a) Tissue basophils;
b) Melanocytes;
c) Langerhans cells;

d) Keratinocytes;
e) Merkel Cells.

229. In the third week of embryogenesis, the central part of the epiblast cells (ectoderm) bends and the neurulation process begins. Determine in which direction the remaining cells, ectoderms, differentiate?
a) Skin;
b) Somites;
c) Yolk bladder;
d) Chords;
e) Intestines.

230. In forensic medical practice, it is periodically necessary to perform identification of an individual. For this purpose, the method of fingerprinting is used. Explain the structural features of which layer determines the individual pattern of the skin of the fingers?
a) The epidermis and dermis;
b) The reticular layer of the dermis;
c) The papillary layer of the dermis;
d) The epidermis, dermis and hypodermis;
e) The epidermis.

231. On an electronic micrograph of the epidermis of the skin, process cells are distinguished among cubic cells, in the cytoplasm of which there is a well-developed Golgi apparatus, many ribosomes and melanosomes. Name this cell?
a) Tissue basophils;
b) Melanocytes;
c) Langerhans cells;
d) Keratinocytes;
e) Merkel Cells.

232. Specify whether the trophic function of the skin is performed by a layer ...
A) granular
B) basal
C) spiky
D) papillary
E) reticular

233. List which fabric forms the mesh layer of the skin…
A) dense irregular
B) loose unformed
C) dense decorated
D) reticular
E) lymphoid

234. Choose, the cortical substance of the hair consists of:
A) polygonal cells with pigment granules
B) flat horny scales with pigment granules
C) amorphous substance
D) cells of the germinal layer of the epidermis
E) dying melanocytes

235. Indicate whether hair growth occurs due to cell division:
A) brain matter.
B) cortical substance
C) the hair papilla
D) hair follicles
E) hair follicle

236. Choose, the main tissue of the mesh layer of the dermis of the skin is:
A) loose connecting
B) dense decorated
C) dense irregular
D) smooth muscle
E) striated muscle

237. Highlight, the growth of the nail plate occurs due to cell division:
A) its root
B) her body
C) the nail matrix
D) epidermis of nail rollers
E) supra-elbow plate

238. Determine whether the center of the proliferative unit of the epidermis is considered:
A) keratinocyte of the basal layer in the interphase
B) keratinocyte of the basal layer in mitosis
C) pigment cell
D) intraepidermal macrophage
E) Merkel's cage

239. In a fall, a child scraped the skin of his palm. Which epithelium was damaged in the fall?
A) stratified squamous keratinizing epithelium
B) stratified ciliated epithelium
C) simple cuboidal epithelium
D) simple double-row epithelium
E) stratified squamous non keratinizing epithelium

240. A patient with a fractured index finger came to the trauma center. Select which of the injured tissues regenerates the fastest?
A) loose connecting tissue
B) dense regular connective tissue
C) dense connective tissue
D) stratified squamous keratinizing epithelium
E) skeletal muscle tissue

URINARY SYSTEM

241. A patient with suspected glomerulonephritis has the presence of albumins (albuminuria) and glucose (glucosuria) in the secondary urine for two weeks. Choose which parts of the kidney function is impaired?
a) juxtaglomerular apparatus;
b) proximal tubules;
c) loop of Henle;
d) distal tubules;
e) collecting tubes.

242. Histological examination of the kidney in the cortical substance determines a tubule lined with a single-layer cubic edged epithelium, the cytoplasm of which is colored oxyphilically. Specify which segment of the nephron is detected in the drug?
a) distal rectus canaliculus;
b) proximal convoluted canaliculus;
c) Henle loop;
d) distal convoluted tubule;
e) collecting tube.

243. An electron micrograph of a fragment of a renal corpuscle shows a large epithelial cell with large and small processes. The latter are attached to the basement membrane of the capillaries. Name this cell?
a) juxtavascular cell;

b) podocyte;
c) endotheliocyte;
d) mesangial cell;
e) smooth myocyte.

244. An electron micrograph of a kidney fragment shows a bearing arteriole, in which large cells containing secretory granules are visible under the endothelium. Determine this type of cells?
a) an increase in the amount of testosterone;
b) aspermatogenesis;
c) polyspermia;
d) monospermia;
e) a decrease in testosterone synthesis

245. Leached erythrocytes were found in the patient's urine. Name which part of the nephron is damaged?
a) the membrane of the renal corpuscle;
b) proximal convoluted tubule;
c) Henle loop;
d) distal convoluted tubule;
e) collecting tube.

246. Kidney biopsy material is examined by electron microscopy. The selected electron microphotographs show: a fenestrated endothelium with a basement membrane, on the outside of which process epithelial cells are attached. Specify which kidney formation is represented in electronic microphotographs?
a) filtration barrier;
b) proximal nephron;
c) Henle loop;
d) distal nephron;
e) juxtaglomerular apparatus.

247. Cells with large secretory granules in the cytoplasm are determined on electronic micrographs of the kidney site in the wall of the bringing and taking out arterioles. Determine the structural formation of the kidney, which includes these cells?
a) the renal corpuscle;
b) the proximal nephron;
c) the Henle loop;
d) distal nephron;
e) juxtaglomerular apparatus

248. Leached erythrocytes were found in the analysis of the patient's urine. Where is the localization of the pathological process possible?
a) filtration barrier;
b) proximal convoluted tubule;
c) Henle loop;
d) distal convoluted tubule;
e) collecting tube.

249. A 50-year-old patient with chronic nephritis developed anemia. Determine what was the most likely cause of anemia in this patient?
a) Decrease in erythropoietin production;
b) Violation of the synthesis of adrenaline;
c) Immunological damage to erythropoiesis progenitor cells;
d) Lack of iron;
e) Lack of vitamin B12.

250. Sugar was found in the urine of a 30-year-old patient with its normal amount in the blood. What structural and functional mechanisms of the kidney are damaged?

a) Filtration process;
b) The process of rearbsorption in a thin tubule;
c) The process of rearbsorption in the distal part as a result of insufficient secretion of ADH;
d) The process of rearbsorption in the proximal nephron;
e) The process of rearbsorption in the distal part of the nephron.

251. During a clinical examination in a 35-year-old woman with kidney disease, blood cells, fibrinogen, were found in the urine, probably due to a violation of the renal filter. Determine what structures this filter consists of?
a) Capillary endothelium, basement membrane;
b) Three-layer basement membrane;
c) Endothelium of glomerular capillaries, three-layer basement membrane, podocytes;
d) Podocytes, basal membrane;
e) Endothelium, podocytes.

252. Electron microscopy of the kidney revealed tubules lined with cubic epithelium. There are light and dark cells in the epithelium. There are few organelles in light cells. The cytoplasm forms folds. These cells ensure the reabsorption of water from the primary urine into the blood. Dark cells resemble the parietal cells of the stomach in structure and function. Specify which tubules are represented on the electronogram?
a) filtration barrier;
b) proximal convoluted tubule;
c) Henle loop;
d) distal convoluted tubule;
e) collecting tube.

253. A histological specimen of a kidney shows a part of the distal tubule going between the afferent and efferent arteriole. The cells building the tubule wall have dense nuclei; basal membrane is absent. Such structural formation is called:
a) Juxtavascular cells b) Macula densa c) Juxtaglomerular cells d) Mesangial cells

254. Specify which endocrine cells in the kidney secrete renin?
a) interstitial b) mesangial cell c) juxtaglomerular d) podocytes e) macula dense

255. Blood in the renal arcuate arteries flows next into which vessels?
a) Afferent arterioles b) Efferent arterioles c) Glomerular capillaries
d) Interlobar arteries e) Interlobular arteries

256. Which cell type comprises the visceral layer of Bowman capsule?
a) Endothelial cells b) Juxglomerular cells c) Mesangial cells
d) Podocytes e) Extraglomerular mesangial (or Lacis) cells

257. Which type of epithelium lines the thick ascending limb of the loop of Henle?
a) Pseudostratified columnar b) Simple columnar c) Simple cuboidal
d) Simple squamous e) Transitional (urothelium)

258. Which cell is a modified smooth muscle cell that secretes rennin?
a) Macula densa cells b) Mesangial cells c) Podocytes
d) Juxtaglomerular cells e) Endothelial cells

259. Epithelial cell membrane domains containing many stiffened plaques of protein are an important feature in which part of the urinary system?
a) Juxtaglomerular apparatus b) Bladder mucosa c) Collecting ducts
d) Renal pyramids e) Membranous urethra

260. An immunohistochemical technique using antibodies against aquaporins to stain a section of kidney would be expected to stain cells in which structures most intensely?

a) Collecting ducts b) Lining of major and minor calyces c) Proximal convoluted tubules
d) Distal convoluted tubules e) Glomeruli

261. What type of epithelium lines the prostatic urethra?
a) Simple columnar b) Pseudostratified columnar c) Stratified squamous
d) Simple squamous e) Transitional (urothelium)

262. A 14-year-old patient in the nephrology clinic with fatigue, malaise, anorexia, abdominal pain, and fever. She reports a loss of 6 lb in the past 2 month. Serum gamma globulin as well as the immunoglobulins IgG, IgA and IgM are all elevated. Her serum creatine is 1.4 mg/dL (normal 0.6-1.2 mg/dL) and urinalysis of glucose and protein are 2+ on a dipstick test, confirmed by laboratory at 8.0 g/dL and 0.95 g/dL, respectively. A renal biopsy is prepared for light microscopy and an infiltrate containing lymphocytes, plasma cells, and Eosinophils is found among tubules having cells with prominent brush borders. Which one of the following statements correctly pertains to these epithelial cells?
a) Impermeable to water despite presence of ADH
b) The primary site for the reduction of the tubular fluid volume
c) The site of the countercurrent multiplier
d) The site of action of aldosterone
e) Indirectly involved in the release of rennin

263. A 45-year-old man presents with nephrolithiasis or kidney stones. The process of calcium oxalate stone formation as seen in this patient begins with Randall plaques found in the basement membranes of which one of the following structures found only in the renal medulla?
a) Proximal convoluted tubules b) Distal convoluted tubules c) Thin loops of Henle
d) Afferent arterioles e) Collecting ducts

264. A 15-year-old male presents with hematuria, hearing loss, lens dislocation, and the onset of cataracts. Genetic analysis reveals a mutation in the COL4A5 gene. Transmission EM examination of a renal biopsy confirms that the disorder has affected a component of the renal corpuscles in which damage disrupts normal glomerular filtration. Which one of the following structures would most likely be abnormal in the TEM of this patients biopsy?
a. Pedicels
b. Filtration slits
c. Slit diaphragms
d. Glomerular basement membranes
e. Fenestrated endothelium of glomerular capillaries

265. Specify where mesangiacytes are located in the kidneys
a) in the inner leaflet of the glomerulus capsule
b) as a part of macula densa
c) next to intercanal capillaries
d) between capillaries of glomerulus vascularis
e) around of afferent and efferent arterioles

REPRODUCTIVE SYSTEM

266. Specify the source of testicular development ...
A) the epithelium of the paramesonephral ducts
B) thickening of the coelomic epithelium of the primary kidneys
C) the epithelium of the mesonephral ducts
D) the epithelium of the pariental leaf of the splanchnotome
E) coelomic epithelium

267. Determine whether the primary germ cells are formed for the first time ...
A) in the mesenchyma of the trunk
B) in somites
C) in the wall of the yolk sac

D) in the primary kidney
E) in the amnion

268. Specify what does not develop from the wolf ducts?
A) appendages of the testis
B) bulbourethral glands
C) seminal vesicles
D) Vas deferens
E) testicular network

269. Specify the structure from which the scrotum develops ...
A) genitourinary sinus
B) floor rollers
C) sexual tubercle
D) wolf's duct
E) Muller's channel

270. What does not characterize the development of male sexual structures?
A) in the rudiments of the male sex glands the brain substance receives predominant development
B) The Y chromosome controls the critical stage of sexual differentiation...
C) primary germ cells differentiate in spermatogony
D) under the action of the Muller inhibitory factor, the wolf ducts
they differentiate into male sexual structures
E) primary germ cells migrate from the wall of the yolk sac into
the genital rollers

271. Choose what does not characterize spermatogenesis?
A) lasts 65 days
B) occurs at a temperature below body temperature
C) consists of the stage of reproduction and maturation
D) begins with the onset of puberty
E) occurs in the convoluted seminal tubules

272. Specify which of the functions are performed by the testes?
A) generative and immune
B) generative and endocrine
C) endocrine and excretory
D) immune and secretory
E) hematopoietic and endocrine

273. Name the type of tissue that is formed by the stroma of the testis ...
A) dense connective tissue
B) loose connective tissue
C) reticular tissue
D) epithelial
E) muscular

274. Specify the path of movement of spermatozoa in the genital tract of men ...
A) straight tubules - seminal tubules - convoluted excretory tubules - duct of the appendage - vas deferens - ejaculatory canal
B) convoluted outflow tubules - seminal tubules - straight tubules - duct of the appendage - ejaculatory canal
C) seminal tubules - straight tubules - convoluted outflow tubules - duct of the appendage - vas deferens - vas deferens
D) seminal tubules - convoluted outflow tubules - straight tubules - ejaculatory canal
E) seminal tubules - straight tubules - duct of the appendage - vas deferens - vas deferens

275. Determine which cells are located between the seminal tubules and synthesize androgens?
A) supporting cells
B) fibroblasts
C) adventitious cells
D) interstitial cells
E) reticular cells

276. Specify which hormone is synthesized by interstitial testicular cells?
A) estrogen
B) insulin
C) thyroxine
D) lutropin
E) Testosterone

277. Determine which of the functions are not performed by the supporting cells of the testis?
A) provide nutrition to developing germ cells
B) protect developing germ cells from harmful effects
C) phagocytic degenerating germ cells and residual bodies
D) synthesize follicle-stimulating hormone
E) synthesize androgen-binding hormone

278. Give a definition. The hematotesticular barrier is...
A) capillary endotheliocyte - endothelial basement membrane - interstitial connective tissue - myoid cell layer - tubule basement membrane - dense junctions of sustentocytes
B) the basement membrane of the endothelium - capillary endotheliocyte - a layer of myoid cells - dense junctions of sustentocytes
C) capillary endotheliocyte - tubule basement membrane - dense junctions of sustentocytes
D) interstitial tissue - capillary endotheliocyte - myoid cell layer - dense junctions of sustentocytes
E) capillary endotheliocyte - capillary basement membrane -dense junctions of sustentocytes

279. List, spermatogenesis successively goes through the following phases ...
A) formation - reproduction - growth - maturation
B) reproduction - growth - maturation - formation
C) growth - reproduction - maturation - formation
D) maturation - growth - reproduction - formation
E) maturation - reproduction - growth formation

280. Choose which functions are performed by Leydig cells?
A) synthesize luteinizing hormone
B) synthesize testosterone
C) protect the germ cells from harmful effects
D) serve as supporting elements for germ cells
E) synthesize estrogen

281. Specify when spermatogonia enter the stage of reproduction?
A) at the 4th month of intrauterine development
B) with the onset of puberty
C) immediately after differentiation from primary germ cells
D) after lowering the testicles into the scrotum
E) during the period from birth to puberty

282. Specify whether the spermatozoa from the straight tubules fall into ...
A) the carrying tubules
B) ejaculatory duct
C) testicular network
D) the duct of the appendage
E) ampoule of the vas deferens

283. Choose which cells synthesize the Muller inhibitory factor?
A) interstitial cells
B) sustentocytes
C) primary germ cells
D) pituitary gonadotropocytes
E) pituitary somatotropocytes

284. In case of mechanical injury of the testis in a man, a violation of the integrity of the walls of many tubules was noted. Choose what it will lead to?
a) Aspermatogenesis;
b) An increase in the amount of testosterone;
c) Reduction of testosterone synthesis;
d) Monospermia;
e) Polyspermia.

285. In the study of familial fluid in a patient aged 25 years, an insufficient number of germ cells was revealed. Which of the cells of the male sex glands, dividing, provide a sufficient number of spermatozoa for fertilization?
a) Spermatogonia;
b) Supporting cells;
c) Leydig cells;
d) Sertoli Cells;
e) Sustentocytes

286. On the histological section, we see an organ that is externally covered with serous and albuminous membranes. The stroma of the organ is made up of loose connective tissue, in which Leydig cells are located, the parenchyma is represented by tubules, the inner surface of the tubules is laid out by spermatogenic epithelium. Name what kind of organ is this?
a) Testis;
b) Ovary;
c) Prostate;
e) Mammary gland.

287. In case of mechanical injury of the scrotum, violations of the epithelial lined network of the testis were revealed in the patient. Specify which epithelium was injured?
a) Simple cuboidal;
b) Single-layer prismatic;
c) Transitional;
d) Double-row;
e) Multilayer flat.

288. Choose which cells secrete androgen binding protein?
A) Sertoli cells
B) Leydig cells
C) seminal vesicle cells
D) prostate cells
E) bulbourethral gland cells

289. Specify the epithelium, which consists of high cylindrical cells with cilia, and low cubic cells with microvilli lining ...
A) the vas deferens
B) straight tubules
C) ovarian network
D) the duct of the appendage
E) urethra

290. Choose, the formation of male germ cells occurs in
A) straight tubules of the testis
B) tubules of the testis network
C) convoluted tubules of the testis
D) the outputting tubules of the testis
E) the duct of the appendage

291. Which of the following accurately describes spermiogenesis?
a) Occurs before puberty b) Involves stem cells, meiosis, and spermatogenesis
c) Involves cytodifferentiation of early spermatids d) Occurs in diploid cells
e) Results in the formation of primary spermatocytes

292. A man with a pituitary gonadotrophic tumor causing hyposecretion of follicle-stimulating hormone (FSH) is most likely to exhibit which condition?
a) No symptoms, since he has no ovarian follicles b) Loss of libido (sex drive)
c) Low serum testosterone levels d) Low sperm count
e) Prostatic hypertrophy

293. Interstitial cells of Leydig have an important function in male gamete production. Because of this function, which of the following organelles is abundant within these cells?
a) Lysosomes b) Smooth endoplasmic reticulum c) Peroxisomes
d) Polyribosomes e) Golgi complexes

294. While studying a germ cell line developed from a patient's testicular biopsy, the researcher notes that colchicine-treated cells blocked in metaphase have 46 chromosomes. From which of the following regions of the male genital tract would you expect these cells to have originated?
a) Within the rete testis b) At the basal lamina of the seminiferous tubule
c) In the middle region of the germinal epithelium
d) Within the adluminal compartment of the seminiferous tubule
e) Within straight tubules

295. Which of the following organs is normally characterized by the accumulation of corpora amylacea with increasing age?
a) Prostate b) Seminal vesicles c) Bulbourethral (Cowper) glands
d) Epididymis e) Ductus (vas) deferens

296. Within male reproductive tract, stereocilia project from cells lining which of the following regions?
a) Rete testis b) Seminiferous tubules c) Ampulla of the ductus deferens
d) Epididymis e) Penile urethra

297. As sperm pass through the male genital ducts, proteins and low molecular weight products are added from several sources producing semen. Which of the following provides a nutritive, fructose-rich secretion?
a) Interstitial cells of Leydig b) Bulbourethral (Cowper) glands c) Prostate gland
d) Epididymis e) Seminal vesicles

298. A 29-year-old presents with testicular pain and a burning sensation during urination. Tests reveal the presence of *Neisseria gonorrhea* and penicillin in prescribed. Gonorrhea often produces acute or chronic inflammation of the testes and frequently involves the channels that connect testis to the epididymis. What the name of these channels?
a) The mediastinum testis b) The rete testis c) Efferent ductules
d) The straight tubules (tubuli recti) e) The seminiferous tubules

299. A 39-year-old man undergoing an extensive series of tests for infertility is found to have genetic mutation that prevents formation of a functional synaptonemal complex during meiosis, causing almost complete failure of sperm formation. Which cells would be directly affected by the mutation?
a) Primary spermatocytes b) Spermatogonia c) Secondary spermatocytes

d) Spermatids e) Cells undergoing spermiogenesis

300. Specify the sources of ovarian development ...
A) thickening of the coelomic epithelium of the primary kidneys
B) outgrowths of the genitourinary sinus
C) the epithelium of the paramesonephral duct
D) coelomic epithelium of the dorsal mesentery
E) epithelium of the parietal leaf of the splanchnotome

301. Choose, ovogonia are formed in ...
A) the ovary of the embryo
B) the ovary of an adult woman
C) the period of maturation
D) oviduct
E) the appendage of the ovary

302. Specify the sources of development of the fallopian tubes ...
A) the upper part of the mesonephral duct
B) paramesonephral ducts
C) genitourinary sinus
D) metanephridia
E) segmental legs of somites

304. Give a definition. Mammary glands are modified ...
A) sebaceous glands
B) skin sweat glands
C) digestive glands
D) salivary glands
E) lacrimal glands

305. specify the sources of development of the uterus and vagina ...
A) distal sections of the right and left mesonephral ducts
B) distal sections of the right and left paramesonephral ducts
C) proximal sections of the right and left paramesonephral ducts
D) proximal sections of the right and left mesonephral ducts
E) metanephridia

306. Determine whether the primordial follicle consists of…
A) ovocyte, transparent shell, cylindrical follicular cells
B) an ovocyte, a single layer of flat follicular cells
C) ovocyte, egg-bearing tubercle, internal and external fluid
D) ovocyte. radiant crown, follicular fluid
E) ovocyte, follicular fluid, external fluid

307. List, the primary follicle consists of…
A) ovocyte, a single layer of flat follicular cells
B) ovocyte, transparent shell, 2-3 layers of cylindrical follicular cells
C) ovocyte, egg-bearing tubercle, internal fluid
D) ovocyte, radiant crown, follicular fluid, external fluid,
E) ovocyte, follicular fluid, internal and external fluid

308. The ovarian cycle includes the following sequence of events ...
A) follicle growth - formation of the corpus luteum - activity of the corpus luteum - its regression
B) follicle growth - ovulation - formation and active function of the corpus luteum - its regression - growth of a new follicle
C) ovulation - follicle growth - formation and functioning of the corpus luteum
D) follicle growth - ovulation - growth of a new follicle

E) follicle growth - ovulation - follicle regression - growth of a new follicle

309. Indicate whether the uterine myometrium is formed by ...
A) striated muscle tissue.
B) smooth muscle tissue
C) cardiac striated muscle tissue
D) myoepithelial cells
E) pericytes

310. Determine which hormone causes the synthesis of estrogens?
A) estrogen
B) lutropin
C) follitropin
D) thymosin
E) thyroid-stimulating hormone

311. Determine which hormone causes the synthesis of progesterone?
A) lutropin
B) follitropin
C) oxytocin
D) relaxin
E) inhibin

312. Specify which cells secrete estrogen?
A) neurosecretory cells of the hypothalamus
B) gonadotropocytes of the adenohypophysis
C) cells of the inner shell of the secondary follicle
D) somatotropocytes
E) interstitial testicular cells
313. Choose which cells secrete progesterone?
A) gonadotropocytes of the adenohypophysis
B) interstitial testicular cells
C) ovocytes
D) luteal cells of the corpus luteum
E) chromaffin cells of the adrenal glands

314. Classify, the uterine glands belong to…
A) simple alveolar
B) simple tubular
C) complex alveolar with branched ends
D) complex tubular with branched ends
E) complex alveolar-tubular

315. Specify, after ovulation, the follicle is formed in place of:
A) white body
B) yellow body
C) atretic body
D) mature follicle
E) growing follicle

316. With cyclic changes of the uterus, the most pronounced morphological rearrangement is subjected to:
A) myometrium
B) the basal layer of the endometrium
C) functional layer of the endometrium
D) perimeters
E) the entire wall of the organ

317. Mass atresia of ovarian follicles, accompanied by estrogenization of the body, occurs during:
A) embryonic
B) prepubescent
C) pregnancy
D) climacteric
E) senile

318. Specify whether the intra-follicular fluid in the ovary is secreted:
A) ovogonia
B) ovocyte of the first order
C) ovocyte of the II order
D) follicular cells
E) interstitial cells

319. A cesarean section operation was performed on the patient, while the uterine wall was cut for a considerable length and the fetus was extracted. By what mechanism will healing occur in the area of the bruised myometrium?
a) formation of a connective tissue scar;
b) formation of striated muscle fibers;
c) hypertrophy of smooth myocytes;
d) proliferation of myosatellitocytes;
e) neoplasm of smooth muscle tissue;

320. Gonoblasts, progenitors of germ cells, were detected in the embryo for 2-3 weeks. In what material do these cells differentiate?
a) in the yolk sac;
b) in the rudimentary ectoderm;
c) in the rudimentary endoderm;
d) in the dermatome;
e) in the mesenchyme;

321. In the ovarian preparation, along with follicles of different orders, there are atretic bodies and a developed yellow body. Specify which stage of the ovarian-mental cycle corresponds to such a state in the ovary?
a) regenerative;
b) follicle growth;
c) menstrual;
d) postmenstrual;
e) premenstrual;

322. In the histopreparation of a woman's ovary, structures with a large cavity are determined. The ovocyte of the first order in them is surrounded by a transparent shell, a radiant crown and is located in the egg-bearing tubercles, the wall is formed by a layer of follicular cells and a folder. Specify which structure of the ovary these morphological features belong to?
a) primary follicle;
b) primordial follicle;
c) mature follicle;
d) yellow body;
e) atretic body;

323. In the histopreparation of a woman's ovary, a rounded formation consisting of large glandular cells containing the pigment lutein is revealed. In the center of this structure there is a small connective tissue scar. Specify the structure of the ovary?
a) primary follicle;
b) primordial follicle;
c) mature follicle;

d) yellow body;
e) atretic body;

324. Normal implantation of a human embryo can only take place with a corresponding change in the endometrium of the uterus. Find out which endometrial cells are quantitatively increased at the same time?
a) myocytes;
b) neurons;
c) fibroblasts;
d) decidual cells;
e) macrophages;

325. An increased amount of estrogens was found in the woman's blood. Specify which ovarian cells are involved in the formation of these hormones?
a) Interstitial and follicular cells of secondary follicles;
b) Follicular cells of primary follicles;
c) Follicular cells and ovocytes;
d) Follicular cells of primordial follicles;
e) Ovocytes;

326. Irregular shapes of bright pink color (stained with hematoxylin and eosin) are observed on a slice of a normal ovary. As a result, what formed these figures?
a) White body formation;
b) Necrosis of the follicle;
c) Formation of the corpus luteum;
d) Ovulation;
e) Follicle atresia;

327. A blood test of a non-pregnant woman at the age of 26 revealed a low concentration of estrogens and high progesterone. Determine at what stage of the ovarian-menstrual cycle was the analysis done?
a) Menstrual phase;
b) Desquamation phase;
c) Endometrial proliferation phase;
d) Premenstrual phase (secretory);
e) Postmenstrual phase (proliferative);

328. A 35-year-old patient with a diagnosis of infertility in the gynecological department underwent a diagnostic biopsy of the endometrium. Microscopic examination revealed that the mucous membrane with edema phenomena, the uterine glands are sinuous, filled with a thick secret. Choose which excess hormone causes such changes in the endometrium?
a) Somatotropin;
b) the ACT of hormone;
c) Estrogen;
d) Testosterone;
e) Progesterone;

329. A woman has ovarian hyperemia, increased permeability of the hemato-follicular barrier with the consistent development of edema, infiltration of the follicle wall by segmented leukocytes. The volume of the follicle is large, its wall is thinned. What period of the sexual cycle does the described picture correspond to?
a) The menstrual phase;
b) The period of relative rest;
c) The pre-ovulatory stage;
d) Ovulation;
e) Postmenstrual phase (proliferative);

330. A patient with pituitary adenoma (neoplasms in the anterior pituitary gland) has an increase in the duration of the phase of large follicle growth. What is the duration of the period of large growth of ovocytes in the process of ovogenesis normally?
a) 28 days;
b) 12-14 days;
c) After birth and before puberty;
d) Several years (from 10-13 to 40-50) after birth;
e) From 3 months of prenatal development until birth;

331. A human embryo was found in the uterine cavity, not attached to the endometrium. What stage of development does the embryo correspond to?
a) Zygotes;
b) Gastrules;
c) Neurules;
d) Blastocysts;
e) Morules;

332. The preparation of the uterine endometrium is presented. On the preparation, the endometrium is covered with a cylindrical epithelium without cilia, the uterine glands are straight, decidual cells are absent or there are few of them. Determine which stages of the menstrual cycle demonstrate this drug?
a) menstrual;
b) premenstrual;
c) postmenstrual;
d) pregnancy;

333. The preparation of the uterine endometrium is presented. On the preparation, the endometrium is covered with a high ciliated epithelium, branched glands, many decidual cells. Indicate which stages of the menstrual cycle demonstrate this drug?
a) menstrual;
b) premenstrual;
c) postmenstrual;
d) pregnancy;

334. Choose, lactating mammary glands are:
A) simple tubular
B) simple alveolar
C) complex alveolar
D) complex tubular
E) unbranched

335. In the ovary specimen colored with hematoxylin-eosin, follicle is determined where cubic-shaped follicle epithelium cells are placed in 1-2 layers, and scarlet covering is seen around ovocyte. Name this follicle:
a) Atretic b) Primary c) Secondary d) Primordial e) Mature

336. An ovary specimen stained by hematoxylin-eosin presents a follicle, where cells of follicular epithelium are placed in 1-2 layers and have cubic form, there is a bright-red membrane around the ovocyte. What follicle is it?
a) Secondary b) Primordial c) Primary d) Mature e) Atretic

337. Which stage of the ovarian follicle development is characterized by an initial period of follicular fluid accumulation?
a) Graafian follicle b) Mature follicle c) Primordial follicle
d) Oocyte e) Secondary follicle

338. Which of the following is characteristic of granulosa lutein cells?
a) Are a minor cell type in the corpus luteum b) Derive from the theca interna

c) Contain abundant rough endoplasmic d) Are small and dark-staining
e) Secrete progesterone

339. Which of the following hormones is primarily responsible for inducing ovulation?
a) Relaxin b) Luteinizing hormone c) Progesterone
d) Follicle-stimulating hormone e) Estrogen
340. Endometrial glands are typically most fully developed and filled with product during which day(s) or phase of a woman's menstrual cycle?
a) Menstrual phase b) Day 1-4 c) The day ovulation occurs
d) Proliferative phase e) Day 15-28